

**INVESTIGATION OF FACTORS THAT CONTRIBUTE TO AN
ENVIRONMENTAL EDUCATION STRATEGY FOR THE STAKEHOLDERS
IN THE SPEYSIDE COMMUNITY, TOBAGO**

A Research Paper

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1. EXECUTIVE SUMMARY

Speyside's marine resources were important to the coastal community for subsistence and tourism, due to direct and indirect use. The area was proposed to be designated as a Marine Protected Area and the Speyside Management Plan (SMP) was formulated. The education component of the SMP recommended the design and implementation of ongoing, community environmental education programmes in Speyside. Literature reviews noted factors that should be considered in the development of environmental education programmes. In order to improve on existing environmental education programmes and to inform the development of an environmental education programme tailored to the needs of the Speyside community; this study investigated the factors that contribute to an environmental education strategy for the Speyside community. In Speyside, this study specifically sought to identify the socio-economic characteristics of the area that may influence interactions with and the use of marine resources, evaluate the status of environmental education; obtain the stakeholders' perspective on the marine environment; highlight practices amongst stakeholders that affect the marine environment; and identify the VARK learning preferences of the stakeholders in Speyside.

This study obtained data from the primary and secondary stakeholders in the Speyside community through the use of semi-structured interviews and the VARK questionnaire. Qualitative data from interviews was analyzed using line by line analysis of responses and quantitative data from VARK questionnaires was analyzed using the appropriate method for each VARK questionnaire. Interview responses and VARK scores were used in conjunction with photographs and observations to draw conclusions.

The following socioeconomic characteristics and major trends were noted. Most individuals in all age groups had attained at least primary school education, while more persons in younger age groups attained at least secondary education and tertiary education was very uncommon. The educational level and the literacy level will influence the material used in the delivery of an environmental education programme. Most persons had access to the basic amenities but limited access to Internet and newspapers. Persons learnt of the study, mainly through the radio or the PA system and fewer read about it in the newspapers or flyers. This was a possible reflection of preferences for acquiring information; the poor radio and TV reception in the area and lack of newspapers in the area. This limited communication between Speyside and the rest of the country, which in turn can influence the design of a communication system in an environmental education programme.

Several community groups were identified in Speyside, in addition to a low participation rate and rapid loss of interest by community members. The various religious denominations and occupations in the area were noted in addition to the fact that most persons interviewed were unemployed. The residency time of most individuals ranged from 11-50 years. Existing socioeconomic conditions in Speyside can be a limitation or strength in the development of an environmental education programme as they influence the attitudes, perceptions, practices and learning preferences of individuals. The socioeconomic profile was generated for 22% of the entire Speyside population but this did not reflect the entire population of Speyside and only served to highlight possible trends amongst a proportion of the community.

Most of the individuals interviewed had a multimodal learning preference but all the single learning preferences were also present, with the Visual and Aural mode

being the least and most common respectively. Specific preferences and teaching methods were identified for each stakeholder group. The VARK learning preferences should be considered in conjunction with the conditions identified in Speyside to ensure that proper communication systems and teaching methods are employed in environmental education programmes.

Most persons adequately associated the marine environment with coral reefs, marine creatures and related activities but primary and secondary students were either unsure or associated the marine environment with the surroundings. Thus, it was recommended that more emphasis be placed on primary and secondary students in this area. Most residents, hospitality and fishermen recognized the importance of the marine environment in terms of the benefits that can be derived, the existence value and functions of the reef. They believed that the reef needed protection although it was in a good condition.

Although it was stated that some measures were taken to ensure that solid waste disposal was done in an environmentally friendly manner, observations contradicted this. While hospitality and some residents stated that measures were taken to reduce sewage and wastewater from entering the sea, others cited the use of cesspits and drains as preventative measures. All RTOs, Dos and most fishermen stated that measures were taken to prevent chemical pollution of the marine environment.

Amongst the students in Speyside, secondary education was attained mainly from secondary schools in neighbouring villages. At the primary school in Speyside, environmental education was and is, delivered mainly by NGOs and supported by GOs. However, few programmes were on an ongoing basis. Secondary students had

little exposure to environmental education and the community in Speyside was targeted on a very limited, discontinuous basis. Given the experiences of various organizations in environmental education, it was suggested that organizations collaborate to successfully develop and implement an environmental education programme targeted for the Speyside community. Additionally an evaluating system should be established to gauge success and learn from failures and successes of existing programmes. Organizations noted that environmental education programmes were limited by a lack of financial, human and technical resources. Possible problems which may be encountered in the Speyside community and topics to be focused on in an environmental education programme were noted.

The stakeholders agreed that community environmental education programmes were needed and pledged their support for and willingness to participate in such programmes. The need for more community involvement in promoting environmental education was evident as some initiatives were taken by only RTOs and DOs to promote environmental education. Although the study identified characteristics and highlighted trends, it could not adequately verify the relationship that existed between identified factors. Further research, monitoring and in-depth analysis was recommended to adequately rectify several discrepancies noted; and to verify relationships between identified factors and the use of the environment. Overall the factors that contribute to an environmental education strategy for the Speyside community were investigated and recommendations were made for the development of future programmes and to enhance existing environmental education initiatives, tailored to the stakeholders in Speyside.

2. INTRODUCTION

2.1. STUDY AREA

Speyside, a small coastal village in northeast Tobago, is closely associated with one of the island's five major coral reef formations. The marine area (Fig.1) extends 11.7 square kilometres (km²), between latitude 10° 17'N and 10° 19'N and longitude 60° 30'W and 60° 32'W (Laydo, 1985), and encompasses eight fringing coral reefs (Starwood Reef, Belmont Reef, Bateau Reef, Lau's Reef, Big Reef, Lucy Vale Reef, Goat Island Reef and Little Tobago Reef) and two islands (Goat Island and a wildlife sanctuary on Little Tobago Island) (Laydo, 1991).

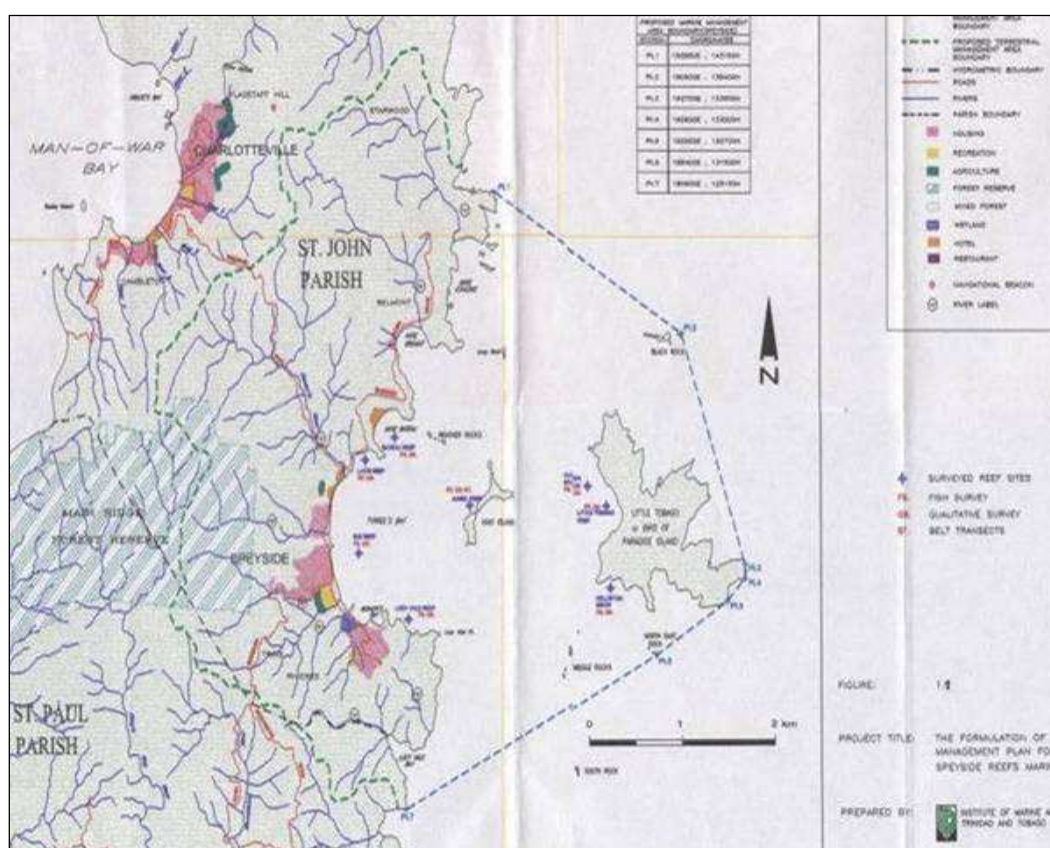


Fig. 1: Major Coral Reef Sites in the Proposed MPA in Speyside (IMA, 1999)

The reefs submerged under 10m of water, slope to depths of 35m and extend 500m from the coast, and 250m from the western sides of Goat Island and Little Tobago. The reefs are in a good condition with 44 coral species and 84 fish species (Laydoo, 1985 and 1991 & IMA, 2002). The high species diversity coupled with warm, tropical waters and good visibility supports numerous commercial and recreational marine activities. The Speyside community consists of a variety of stakeholders who directly and indirectly use the marine resources and consequently have some impact on it (Gallagher-Freymuth, 2002 & KAIRI Consultants, 2003) as most of the community is involved in various levels of subsistence, commercial and recreational fishing (IMA, 2002).

Speyside is a popular tourist attraction, known especially for eco-tourism. Locals and foreigners participate in snorkelling, drift dives; and tours of the reefs and the wildlife sanctuary on Little Tobago Island (Laydoo, 1991 & IMA, 2002). Thus, the marine resources contribute economically to the tourism industry in Tobago. Increased coastal development in conjunction with tourism activities will place additional burdens on the marine resources, bringing to the forefront the pressing issues of the need for management, conservation and sustainable use of marine resources through the use of legislation and increased public environmental education and awareness. The Institute of Marine Affairs (IMA) noted that public awareness campaigns must work in conjunction with tourism ventures in order to preserve the coral reef resources, which are the sources of income for Tobago (IMA, 1999).

2.2. BACKGROUND

In Tobago, the smaller of the two islands that comprise the twin island Republic of Trinidad and Tobago; the tourism industry is the main contributor and income generator with estimates from TIDCO reporting an increase in the number of international arrivals to Tobago over the years (TIDCO, 2001 & KAIRI Consultants, 2003).

Although tourism is important, its negative environmental impacts are evident in Buccoo Reef, the largest and most accessible reef in Tobago. This reef was legally declared a Marine Protected Area in 1973 under the Marine Areas (Restricted Area) Order and the 1970 Marine Areas (Preservation and Enhancement) Act No. 1(EMA, 2004). This status restricted several activities on the reef but despite this, heavy environmental degradation has resulted from a lack of management of sewage and wastewater disposal; coastal development; over fishing; tourism and recreational activities (reef walking). The two latter activities are the main contributors to reef destruction, with an estimate of over 34,000 visitors taking glass-bottom boat tours to the Buccoo Reef per year (BRT, 2002).

The Tobago House of Assembly (THA), recognizing the need to protect and manage the marine resources of Tobago, commissioned the IMA to survey reefs of Tobago under the Tobago Reefs Management Programme in 1983. The formulation of the Buccoo Reef Management Plan (BRMP) resulted in 1995 (EMA, 2004 & IMA, 2002). However, short comings in the BRMP contributed to difficulties experienced in implementing recommended measures (Mukidah, 2003).

The IMA then recommended that the marine area in Speyside, be designated as a Marine Protected Area (MPA) (IMA, 2002). Although the environmental quality

of the Speyside reefs is still good, several threats to the integrity of the Speyside reefs were identified including spear fishing, agricultural practices, deforestation, sewage and grey water runoff; and solid waste disposal (IMA, 2001 & 2002). Given the lessons learnt from the BRMP; and the fact that the Speyside reefs were in a better condition than the Buccoo Reef and contributed economically to the tourism industry in Tobago (KAIRI Consultants, 2003), in 2002 the IMA formulated a Speyside Management Plan (SMP) on behalf of the THA (IMA, 2002). The SMP recommended that the marine area be designated a managed area in the first 2 years, then gradually replaced over 5-10 years by a MPA (IMA, 2002). Close involvement of stakeholders in management and voluntary compliance coupled with enforceable regulations were emphasized for the successful implementation of the SMP and it was recommended that the community guided by the THA, manage the marine resources and eventually, the MPA (IMA, 2002).

The SMP consisted of several studies on various aspects of Speyside and it examined the strengths, weaknesses, opportunities, threats and possible plans of action for the Speyside MPA. One such study was the Public Education and Awareness (PEA) component, conducted in order to determine the level of concern and awareness of the communities in Speyside and neighbouring villages, about the marine environment; and the role of users in resource management. The recommendations for the design and implementation of education and awareness programmes for the Speyside community were included in the SMP.

The PEA concluded that a due to the lack of community environmental education programmes and activities in Speyside and surrounding communities, there was a low level of local marine environmental awareness and poor use of existing

educational facilities by educators (IMA, 1999). This led to the recognition of the need for an environmental education initiative targeting stakeholders in Speyside, in order to effectively protect and manage the marine resources. It was recommended that suitable, ongoing environmental education programmes be developed for educators, students and stakeholders (IMA, 1999).

The conclusions of the SMP, derived from the PEA, noted that users and the community are knowledgeable in environmentally correct practices and are willing to improve their knowledge and to assist in protection of the marine resources (IMA, 2002). However, weaknesses were noted among the Speyside community in the level of awareness of the relationship between their daily activities and the impacts on the reef and marine species. Mukhida (2003) questioned these conclusions, stating that there was contradiction between the strengths and weaknesses in the SMP, regarding the level of environmental awareness and knowledge of the Speyside community. Although the SMP stated that the community is knowledgeable of environmentally-friendly practices, it concluded that the community has not adequately linked the impact of its activities on the marine environment. She suggested that this could only be true if the IMA meant that while environmentally knowledgeable, the community has not acted upon this knowledge (Mukhida, 2003).

The SMP recommended the following actions to address the issues identified in the design and implementation of ongoing educational programmes in Speyside:

- Use of information transfer techniques such as: seminars and discussions in a series of one-day workshops on marine environmental issues, conservation and management; peer teaching by elected representatives of the community and collaboration with the Village Council in planning workshops.

- Upgrade and use of existing educational facilities in Speyside and neighbouring communities; and construct information or interpretive centres in the vicinity of the lookout in Speyside and on Little Tobago, in order to provide information through lectures, displays, brochures, an audio-visual facility, maps, posters and a museum or a reference collection with unique specimens.
- Encourage participation of visitors and residents in beach cleanups through anti-pollution campaigns, which focus on improper waste disposal and preventative measures; and the provision of regularly serviced garbage disposal facilities for the community (IMA, 1999).

Mukhida, (2003) recommended that before the formal establishment of the MPA, more focus should be placed on educating and consulting with the public; and integrating their views and concerns into the Management Plan. She noted that successful management of the area depended on education, as the understanding of the effect of actions and perceptions on social, economic, political and natural environments will eventually give rise to structured changes.

Recommendations were made for ongoing environmental education programmes in Speyside, but existing programmes conducted by NGOs and organizations, target the wider public. It is not known how appropriate these programmes are to the Speyside community as they may not adequately address the issues that are of importance to the Speyside community. The socioeconomic conditions, available resources, modes of information transfer and communication, and the learning preferences of the community, were not clearly defined in order to tailor the design of an environmental education programmes for the area.

Consequently, environmental education is regarded as a very important aspect in the management of marine resources based on knowledge of the socio-economic conditions and learning preferences. The activities of stakeholders are influenced by their attitudes, perceptions and behaviours, which are related to the socioeconomic conditions of the community. All these factors must be considered in the design of environmental education programmes.

Priority must be given to coastal communities with marine resources such as Speyside, for the development and implementation of environmental education programmes; which can be tailored to the stakeholders in the area in order to protect and sustainably use these resources that contribute to the economy and livelihoods of residents. This prioritization is necessary given the proximity of the stakeholders to the marine resources; and the threat of unmanaged, unsustainable, exploitation through subsistence, commercial and tourism activities. It should be noted that not all coastal communities will have the same socioeconomic conditions, which affect the attitudes and behaviour as well as the learning preferences of the community. Thus, one generic programme will not be effective with all communities.

This study hopes to improve existing information on the Speyside area by investigating factors which may influence the attitudes, behaviour and learning preference of the community. Based on this information, recommendations can be made to improve existing environmental education programmes so that a programme tailored to the needs, available resources and infrastructure of Speyside, can be designed. This would provide an opportunity for the community to effectively educate stakeholders on the importance of the marine resources and in the long term, actively

manage, sustainably use and conserve the marine resources, to produce benefits for the Speyside area, as recommended in the Draft Management Plan.

2.3. GOAL OF THE STUDY

The purpose of this study is to investigate the factors that contribute to an environmental education strategy for the Speyside community. This information will inform the development of future programmes and enhance existing Environmental Education initiatives, tailored to the stakeholders in Speyside.

2.3.1. Objectives of the Study

The objectives of this investigation of factors that contribute to an Environmental Education Strategy are:

- To identify the socio-economic characteristics that may influence interactions with and use of marine resources, and environmental education programmes by obtaining a socio-economic profile of primary and secondary stakeholders in the Speyside community.
- To evaluate the status of environmental education in Speyside by: investigating the formal processes; community initiatives; contributions by NGOs and the identification of issues to be addressed.
- To obtain the stakeholders' perspective on the marine environment in Speyside through their interpretation of the term 'marine environment' and their views on the condition, value, the need for protection and various methods of protection of the reef.

- To highlight practices amongst stakeholders that affects the marine environment, by identifying methods of resource use and waste disposal, and use of environmentally-friendly technology.
- To identify the VARK (Visual, Aural, Read and Write and Kinesthetic) learning preferences of the primary and secondary stakeholders in Speyside, through the use of the VARK Analysis, in order to determine the preferred mode of information input and transfer.

3. LITERATURE REVIEW

The history of environmental education and the evolution of an environmental consciousness will be examined in this literature review. It will also look at similar studies, which examined factors that contribute to a successful environmental education strategy for communities.

3.1. THE NATURE OF ENVIRONMENTAL EDUCATION

The term Environmental Education defined as “a permanent process in which individuals and the community gain awareness of their environment and acquire the knowledge, values, skills, experiences and also the determination which will enable them to act-individually and collectively- to solve present and future environmental problems (National Council for Science and the Environment, 2005)”, evolved from a working definition initially defined by Dr. William Stapp in 1969. At the Stockholm Conference on the Environment in 1972, environmental education was recommended as a vital means to addressing the world’s environmental crisis. This recommendation was addressed at the International Environmental Workshop, Belgrade in 1975 (Barry, 1976) and expanded at the First Inter-Governmental Conference of Environmental Education, Tbilisi in 1977. The Final Report from the Tbilisi Conference endorsed the following goals, objectives and guiding principles of Environmental Education.

The goal of Environmental Education was to: “foster clear awareness of and concern about economic, social, political and ecological interdependence in urban and rural areas; provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; and create new patterns of behaviour of individuals, groups and society as a whole

towards the environment (UNEP, 2004- Appendix C).” The objectives of environmental education were defined in five categories: awareness, knowledge, attitudes, skills and participation. (UNEP, 2004 & NCSE, 2005). The basic principles guiding programmes for environmental education (Appendix 1) should: consider the total environment; span pre-school to formal and non-formal levels; be interdisciplinary and holistic; examine major environmental issues; link environmental sensitivity to the learner’s own community; recognize the onset of environmental problems and develop critical problem solving skills; use diverse learning environments and approaches (UNEP, 2004).

The Bruntland Commission in 1983 recognized the role of environmental education in the preservation and improvement of the world's environment and the development of the global communities in a sustained, balanced manner (Rudder, Springer & Howell, 1995). It was recognized that the manner in which humans treat the environment was linked to their traditional, cultural and historical views of the users. However, changes to the way that humans view and consequently treat the environment, were possible through the use of environmental education, which raised awareness about the environment and the need for sustainable development.

3.2. DEVELOPMENT OF AN ENVIRONMENTAL CONSCIOUSNESS.

The need for a greater environmental consciousness emerged on the regional level when the UNEP in 1989, noted that wetlands, coastal forests and coral reefs environments in the Caribbean are threatened by numerous human activities including: deforestation, erosion and sedimentation and tourism (UNEP, 1989). Fifteen years later, a lack of attention has placed further emphasis on the need to

address the problems facing coral reefs in the Caribbean, where it is reported that there is growing concern as nearly two-thirds of the region's reefs were directly threatened by human activities (Burke and Maidens, 2004).

The CARICOM Ministerial Conference on the Environment in 1989, which identified and prioritized issues facing Caribbean states, placed environmental education and information high on the list of the strategic approaches to address critical issues in the Caribbean. It was noted that environmental and developmental issues can be successfully tackled through efforts to increase the consciousness and respect for the environment, in addition to the promotion of behaviours beneficial to its preservation. The Caribbean Conservation Association recognized the need for environmental values to encourage sustainable development in the Caribbean and thus, developed a Strategy (regional) for Environmental Education and Communication (Rudder, Springer & Howell, 1995).

3.3. FACTORS OF AN ENVIRONMENTAL EDUCATION STRATEGY

This Strategy for Environmental Education and Communication in the Caribbean identified the following contributing factors on a regional level including: formal education from primary to tertiary level; non-formal education using participatory approaches; public awareness via the electronic media; information and communications through the mass media; and regional cooperation of all parties involved (Rudder, Springer & Howell, 1995).

Following the Tbilisi Conference, UNESCO prepared a document to assist participants at regional environmental education meetings in identifying processes for the development of a national strategy for environmental education. The following

background factors were highlighted for consideration when developing a national process uniquely suited to a nation, region or locality (Appendix 2): existing interest and commitment to environmental education; experience in planning and management of educational efforts; past experiences with environmental education; available and potential resources; overall barriers and facilitating forces for developing a national strategy (Stapp & Crowfoot, 1980).

The identification of these factors which contribute to an environmental education strategy on a national and regional scale was also investigated on a local, community level. The relevance of these factors to the success of an environmental education programme was demonstrated in the following study in Mali, Africa which identified the factors that contribute to the success of environmental education programmes, in order to inform the development of programmes in other areas with similar conditions. Success of programmes was noted by the environmental knowledge and practices among students, parents and communities following environmental education interventions (Diarra, 1999).

In the area three scenarios existed: public sector schools with environmental education programmes, which emphasized the development of awareness, attitudes and practices; public sector schools with no environmental training or information program in their curriculum; and community schools supported by NGOs, with a non-official curriculum rich in environmental content. Community schools addressed environmental issues for students and the community.

Each of type of school was visited in an urban site, a protected site and a rural site and information on qualitative factors was collected in the schools and communities using interview questionnaires (closed and open ended questions)

prepared for students, teachers, principals, parents, and community representatives based on: the knowledge and perception of the environment and associated problems, knowledge of or information about environmental education programmes, and the relationship between this information and community practices. Special attention was paid to the environmental conditions, participation in community groups, topics or concerns to be addressed and solutions, current environmental education activities in school and community. Interviewees were asked whether they were involved in an environmental education programme, to give details of the programme and participation levels, and how it contributed to the school and community. This study was qualitative, thus an inductive approach was used to describe, present, analyze and integrate findings into conclusions (Diarra, 1999).

The study showed that in order to have successful school-community linkages in environmental education programmes certain factors must be considered. These included school-related factors such as good knowledge of environmental issues by teachers; initiative among educators in finding new approaches to develop environmentally friendly attitudes among students and the community; using new learning experiences to change environmental attitudes among students; encourage communication among environmentally concerned educators; and existence of a school-based outreach program to the community. Non-school related factors were identification and prioritization of environmental problems by the community; facilitating community initiatives to alleviate these problems; encourage closer alliances between schools and the community; establishment of a community management and monitoring organization which complements the school (Diarra, 1999). Factors that act as a hindrance include a lack of motivation on the part of

teachers and regular follow-ups; resistance to implementation of environmental programmes and a lack of basic resources and equipment.

All the studies addressed the factors for environmental education at specific levels, but underlying all strategies were certain common factors which can be applied at the community level. The data collection and analytical methods used in the community study (Mali) were successful in accomplishing its objectives (Diarra, 1999); therefore this method was adapted to the study in Speyside which investigated the factors that contribute to an environmental education strategy. Previous studies have noted that participatory learning and teaching approaches were factors in environmental education programmes, but have not indicated the most appropriate method for investigating an individual's learning preferences. The factors noted in this literature review in addition to the research techniques use with the community will inform and guide this study in Speyside.

4. METHODOLOGY

4.1. IDENTIFICATION OF THE STUDY POPULATION

Primary and secondary stakeholders affiliated with the marine resources in the Speyside area were defined (through website searches and a review of studies and literature on Speyside), identified, located (site visit to Speyside prior to data collection) and interviewed (Table 1). Fishermen, reef tour operators (RTOs) and dive operators (DOs) were defined as primary stakeholders since they directly used and relied heavily upon the marine resources. Secondary stakeholders, who indirectly used, affected or had some interest in the marine resources included hotel and guest house owners, restaurant owners, craft shop owners, residents, teachers, primary and secondary students, the Speyside Village Council and governmental and non-governmental organizations (Table 1).

TABLE 1: IDENTIFICATION AND CATEGORIZATION OF STAKEHOLDERS AFFILIATED WITH THE SPEYSIDE MARINE ENVIRONMENT.

STAKEHOLDERS	STAKEHOLDER TYPE	USE, AFFECT, INTEREST IN MARINE ENVIRONMENT	SAMPLE SIZE N=266	
Fishermen	Primary	Direct use	9	
Dive Operators (DOs)	Primary	Direct use	5	
Reef Tour Operators (RTOs)	Primary	Direct use	8	
Hospitality	Hotel Owners/Managers	Secondary	Indirect use	3
	Guesthouse Owners	Secondary	Indirect use	3
Restaurant Owners/Managers	Secondary	Indirect use	4	
Craft Shop Owner/Managers	Secondary	Indirect use	3	
Residents	Secondary	Affect	140	
Teachers	Secondary	Affect	3	
Secondary school students	Secondary	Affect	33	
Primary School Students	Secondary	Affect	38	
Governmental (GO) & Non-governmental Organizations (NGOs)	Secondary	Interest	8	
Speyside Village Council	Secondary	Interest	9	

The secondary stakeholders interviewed from groups, and the governmental and non-governmental organizations (Table 2), with interest in environmental education, planning and management of marine resources in Speyside, provided information on previous and future plans for environmental education programmes in Speyside.

TABLE 2: GROUPS AND ORGANIZATIONS WITH AN INTEREST IN ENVIRONMENTAL EDUCATION AND THE MARINE RESOURCES AT SPEYSIDE.

ORGANIZATIONS	REPRESENTATIVE INTERVIEWED	AFFILIATION
Institute of Marine Affairs (IMA)	Mrs. Shurland-Maharaj- (conducted public education component of SMP)	Consultant, planning and management body
Ministry of Education	Mrs. Allard- School Supervisor III (secondary)	Governmental Education body
	Mr. Franklin- School Supervisor I (primary)	
Department of Natural Resources & the Environment (DNRE)	Mrs. Clarke- Stanislaus-Environmental Officer	Governmental planning & management body
Department of Marine Resources & Fisheries (Fisheries)	Ms. Sandy-Research Officer	Governmental planning & management body
Buccoo Reef Trust (BRT)	Ms. Hyacinth Armstrong- Environmental Education Coordinator	NGO conducting education programmes
Environment Tobago (ET)	Ms. Maharaj- Environmental Education Coordinator	NGO conducting education programmes
Speyside Village Council	<ol style="list-style-type: none"> 1. Farley Augustine- Vice President 2. Anthony Cordner-Treasurer 3. Jephthah Davis- Secretary 4. Rupert Mc Kenna- member 5. Edgar Frank-member 6. Mischelle Trotman- Welfare Officer 7. Elma Lashley Trotman-member 8. Farley Augustine Jr.-member 9. Philomen Spencer Gray-member 	Speyside Village decision-making body

4.2. DATA COLLECTION INSTRUMENT USED

4.2.1. REVIEW OF INSTRUMENTS

A literature review was conducted to determine the most appropriate instrument for data collection in the community. It was noted that for an in-depth, analysis of stakeholder perceptions and the opportunity to follow up specific issues required a questionnaires designed to collect qualitative data for analysis using an inductive approach. The following is a description of the instruments modified for use in this study adapted from the Socioeconomic Manual and Guidelines (Bunce et al. 2002 & Bunce and Pomeroy, 2003) and the VARK Website (VARK website, 2004).

4.2.2. SEMI-STRUCTURED INTERVIEWS

Approximately 25-30 closed-ended and open-ended questions, tailored for each stakeholder group (Appendix 3 (a)-(c)), were used in the interviews to obtain information on the socio-economic characteristics (Bunce et al. 2002 & Bunce and Pomeroy, 2003); the status of environmental education; views on environmental education and practices of stakeholders in the Speyside community. Although the closed-ended questions provided fixed answers, open-ended questions provided more in depth, qualitative information. Observations and photographs were also used to obtain visual data on environmental practices from the study population and area.

4.2.3. VAR K QUESTIONNAIRES

An investigation of the techniques used to identify the learning preferences of individuals revealed that the VARK Analysis, (Visual, Aural, Read and Write and Kinesthetic preferences for information input and transfer), was a suitable method

(VARK Website, 2004) as it identified an individual's ideal learning preference for information input and output. The VARK method was most popularly used amongst students in educational institutions, as it notes the specific preferences for each individual and recommends methods which can be utilized by students and teachers to enhance or improve the learning and teaching process.

Currently, no documented research using the VARK method to identify the learning preferences of a community for the purpose of designing environmental education programmes, has been found. Although the VARK preferences of individuals can change over time according to the experiences and the environment to which individuals are exposed, VARK is a powerful tool for understanding how to relate to others and it will be beneficial in identifying the learning preference of the Speyside community so that appropriate teaching methods may be employed (VARK Website, 2004).

VARK questionnaires were used in conjunction with semi-structured interviews for each stakeholder interviewed (except the Village Council, NGOs and GOs). Thirteen close-ended, multiple-choice VARK questions were read to each respondent interviewed, in order to obtain information on the mode or preference of each individual for taking in and giving out information. A high school version of the VARK questionnaire was used with secondary and primary school students (Appendix 4 (a) and (b)) and the adult version of the VARK questionnaire was used with all other stakeholder groups.

4.3. DATA COLLECTION METHODS-USE OF DATA COLLECTION INSTRUMENTS

4.3.1. PREPARATION

4.3.1.1. Advertisement

Prior to data collection, the study was advertised over a one week period through the distribution of fliers in Speyside; announcements from a public address system on a car driving through Speyside (Saturday); a press release (Thursday), in the Tobago News (a weekly newspaper sold exclusively in Tobago); and 15-second advertisements on Radio Tambrin (a Tobago-based radio station), during prime time (6am-9am and 2pm-6pm) on Tuesday and Sunday, and on Thursday after prime time (9am-2pm and after 6pm).

4.3.1.2. Data Collection Team

Six persons from Tobago, identified by data collectors' badges, were assigned to conduct interviews in Speyside. The interviewers were marine environmental education trainees from the Buccoo Reef Trust and Upper Sixth Form graduates in Natural and Social Sciences, with good interpersonal and organizational skills. Interviewers were divided into 3 groups; each consisting of 1 male and 1 female, and briefings were conducted over a 2-day period on the interview process to reduce biases and variables amongst the six interviewers such as possible alteration of questions and interpretations of responses by interviewers.

4.3.2. SAMPLING STRATEGY

4.3.2.1. *Route Demarcation and Assignment*

The study area was divided into five sections: Lucy Vale, Main Road and Crapaud Village, Top Hill, the Housing Scheme and the area extending into Blue Waters (Appendix 5). Each team of interviewers conducted interviews in assigned routes (Table 3).

TABLE 3: SAMPLING SCHEDULE FOR INTERVIEW PROCESS WITH SPEYSIDE COMMUNITY

AREA	DATE INTERVIEWED (JUNE 2004)	INTERVIEW TEAM	ROUTE (APPENDIX 5)
Lucy Vale	Tuesday 15 th	1	All houses on right side of road
		2	Beach facilities and houses on left side of road, after junction.
		3	All houses on left side of road
Top Hill	Wednesday 16 th	1	All houses on left side of road starting from old internet cafe
		2	All house on right of road starting at old internet café
		3	All houses on both sides of road starting on side closer to lookout.
Main Road, Crapaud Village	Thursday 17 th	1	All houses on main road from lookout till community centre
		2	All houses on left side of road entering Crapaud Village
		3	All houses on right side of road entering Crapaud Village
Housing Scheme, schools	Friday 18 th	All	schools and houses located in road by school
		1	All houses on both sides of road at left of junction.
		2	All houses on left side of road not turning into side road at junction
		3	All houses on right side of road not turning into left junction.
Blue Waters	Friday 18 th	1	Dive shops and reef tours
		2	Hotels and Craft shops
		3	Restaurants
Blue Waters	Saturday 19 th	1	Dive shops and reef tours
Blue Waters/Lucy Vale	Monday 21 st	All	Dive shops and reef tours in Blue Waters and all houses on right side of road after junction in Lucy Vale
Main Road, Crapaud Village	Wednesday 3 rd	All	Sidewalk interviews on Main Road

4.3.2.2. Interview process

On each day face-to-face interviews were conducted with stakeholders in each area allocated for that day (Table 3 and 4) then VARK questionnaires were done with each stakeholder after interviews were conducted. Semi-structured and VARK interviews were conducted at household, schools and business places from 9 am till 3:30pm. Interviewers were instructed to interview one resident per household in all houses in the designated area. However, at times responses from several persons from the same household were noted. Residents in inaccessible houses and houses with no respondents were noted (residents employed outside of Speyside were absent during the interview period).

Secondary school students, fishermen and guesthouse owners were not easily located as there were no secondary schools in the area and all secondary school students attended schools outside of Speyside; fishermen had neither a local fishing organization nor a fixed meeting time; and guesthouse owners were either based abroad or had no local organization. Since guesthouse owners, fishermen, secondary school students were also found in households; persons from each of these stakeholder groups were identified and interviewed during visits to each household (Table 4). Students attending school outside Speyside were accommodated using sidewalk interviews from 3:30pm till 5:30pm.

TABLE 4: DESCRIPTION OF INTERVIEW STRATEGY USED WITH STAKEHOLDERS INTERVIEWED IN THE SPEYSIDE COMMUNITY AND IN ORGANIZATIONS.

STAKEHOLDERS IN SPEYSIDE		SAMPLE SIZE (N=266)	SEMI-STRUCTURED INTERVIEWS		VARK QUESTIONNAIRE
			Interview Method	Where conducted	Interview Method
Fishermen		9	face-to-face	Household and side walk interviews	face-to-face
Dive Operators (DOs)		5	face-to-face	business place	face-to-face
Reef Tour Operators (RTOs)		8	face-to-face	business place	face-to-face
Hospitality	Hotel Owners/ Manager	3	face-to-face or phone	business place, phone interviews	face-to-face, phone
	Guesthouse Owner	3	face-to-face	Household and side walk interviews	face-to-face
Restaurant Owners/Managers		4	face-to-face	business place	face-to-face
Craft Shop Owner/Managers		3	face-to-face	business place	face-to-face
Residents		140	face-to-face	Household interviews	face-to-face
Teachers		3	face-to-face	school	face-to-face
Secondary school students		33	face-to-face	Household and side walk interviews	face-to-face
Primary School Students		38	face-to-face	group at school	face-to-face
Governmental (GO) and Non-governmental Organizations (NGOs)		8	face-to-face or phone or email	Business place, phone, e-mail interviews	none
Speyside Village Council		9	face-to-face	Community center, group discussion	none

Teachers (primary school and kindergarten) and primary school students were easily located in the only primary school and kindergarten in the area. The researcher pre-arranged a date and time for conducting interviews with students and teachers. Primary school teachers selected 5 students residing in Speyside, from each class ranging from Standard 1 to Standard 5. However, more than 5 students were interviewed from each class in some cases, in the following groups: Standard 1, Standard 2-3 and Standard 4-5. No students were interviewed from the kindergarten but a sample of 3 teachers was interviewed from each class (Std1-5) and the

kindergarten school collectively, as several primary school teachers were absent when interviews were conducted.

A snowball interview process was used in business places to capture data from the DOs, RTOs, restaurant owners, craft shop owners, hotel and guesthouse owners. Representatives from the Village Council and organizations were interviewed after the data collection process was completed with the study population in Speyside. Where individuals were unavailable (Hospitality and organizations), interviews were e-mailed or conducted via phone (Table 4).

4.3.2.3. Recording process

Interviewers recorded responses from semi-structured interviews in note books and with tape recorders. Responses to VARK questionnaires were recorded on the questionnaire sheet, along with the respondent's age and gender. Observations and pictures taken by interviewers to highlight negative and positive environmental practices as described in Coral and Toi (2004) were used in conjunction with taped interviews which were transcribed.

4.3.3. DATA ANALYSIS STRATEGY

Information obtained through interviews, observations and pictures was cross checked by triangulating several sources including organizations, the Village Council, the community and the data collection team. Analyses were conducted on the qualitative data obtained from semi-structured interviews, using line by line analysis of responses. Interview questions were compared to the answers given by each

respondent and the main concepts in the responses were identified, categorized and assigned a code name.

Quantitative data obtained from VARK questionnaires for adults, secondary schools and primary schools was analyzed using the appropriate method for each VARK questionnaire (Fleming, 2001). Responses of each person interviewed along with their corresponding VARK scores were entered into a Microsoft Excel spreadsheet, and then Microsoft Excel pivot tables (features of Microsoft Excel for manipulation of data) were used to describe and generate graphical representations of the data. Photographs and observations were compared to defined environmentally friendly practices (Coral and Toi, 2004) in order to indicate whether or not environmentally sound practices were conducted in Speyside.

Interview responses and VARK scores were used in conjunction with photographs and observations to draw conclusions on the socio-economic characteristics; the status of environmental education programmes; practices of stakeholders and the VARK learning preferences of stakeholders in the Speyside community as well as views on environmental education from the community.

5. REUSLTS

5.1. SOCIOECONOMIC PROFILE

A socioeconomic profile of the Speyside community was generated through interviews with 249 individuals from various stakeholder groups in the community. Speyside had a total population of 1,085 (GoTT, 2002) and individuals interviewed represented 22% of the entire Speyside population.

5.1.1. AGE AND GENDER DISTRIBUTION

Fig 2 shows that amongst the individuals interviewed in the community, there was a male to female ratio of 129:120 (approximately 1:1). The Central Statistical Office (GoTT, 2002) estimated a similar male to female ratio of 583:502, (1:1) in 2000.

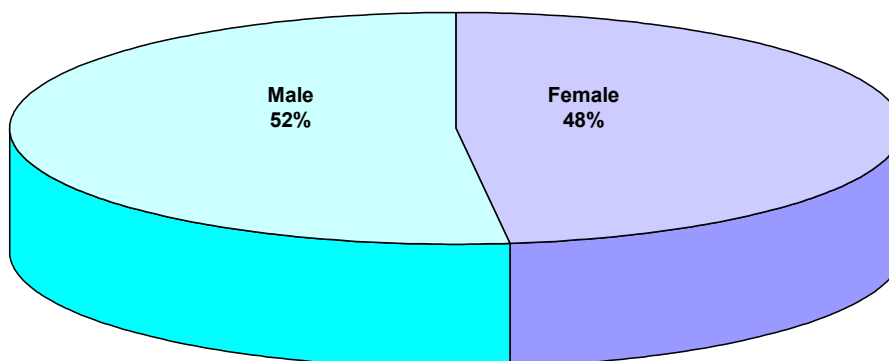


FIG 2: GENDER DISTRIBUTION OF INDIVIDUALS INTERVIEWED (N=249) IN THE SAMPLE OF THE SPEYSIDE COMMUNITY.

The age and gender profile of the stakeholders interviewed in a sample of the Speyside community (Fig 3) indicated that the distribution was roughly bell shaped, but slightly skewed to the younger ages. There was a peak (56 individuals) in the 11-20 age groups while the 81-90 age groups had the least 2 persons. In both these groups the male: female ratios were equal. The males outnumbered the females in these age

groups: slightly in the 21-30 age groups; and significantly in the 41-50 and 51-60 age groups. In all other age groups the females slightly outnumbered the males.

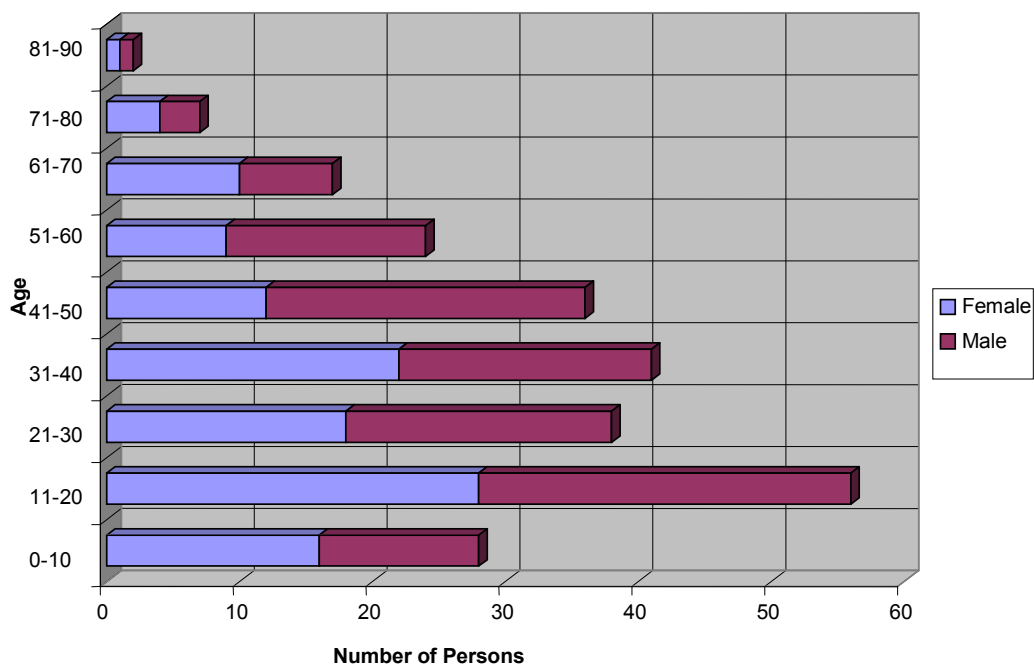


FIG 3: AGE AND GENDER PROFILE OF INDIVIDUALS INTERVIEWED (N=249) IN THE SAMPLE OF THE SPEYSIDE COMMUNITY.

5.1.2. RELIGIOUS DENOMINATION

The dominant religion was Anglican followed by no declared religious denomination. The least prevalent religions were Methodists, Jehovah Witnesses, Rastafarians and Moravians, which made up 1% of the individuals interviewed respectively (Fig 4).

5.1.3. RACIAL COMPOSITION

Of the 249 individuals interviewed 97% were of African descent and 3% was mixed.

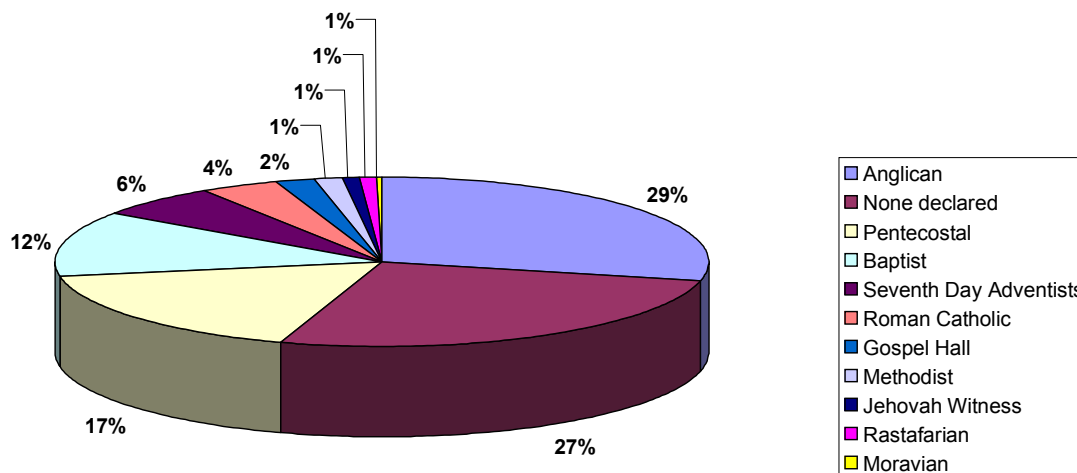


FIG 4: DISTRIBUTION OF RELIGIOUS DENOMINATIONS AMONGST INDIVIDUALS INTERVIEWED IN A SAMPLE OF THE SPEYSIDE COMMUNITY (N=249).

5.1.4. HIGHEST LEVEL OF EDUCATION ATTAINED

Most stakeholders interviewed (N= 241) had some form of formal education; the majority of which (N= 133) had attained only basic primary school education (Fig 5). Few individuals (N=92) had attained secondary education, and even less (N=16) had tertiary education. Of the 8 individuals who had no formal education 4 did a trade.

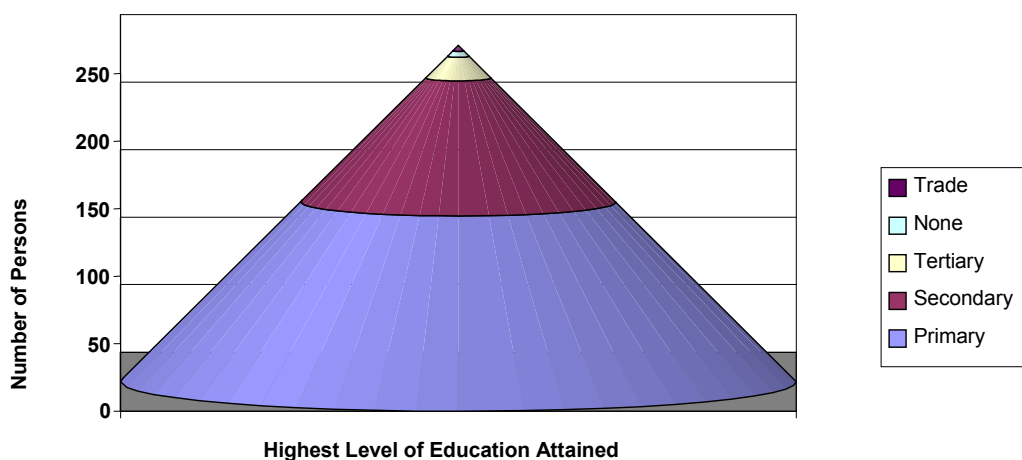


FIG 5: HIGHEST LEVEL OF EDUCATION ATTAINED BY INDIVIDUALS IN SAMPLE OF COMMUNITY AT SPEYSIDE (N=249)

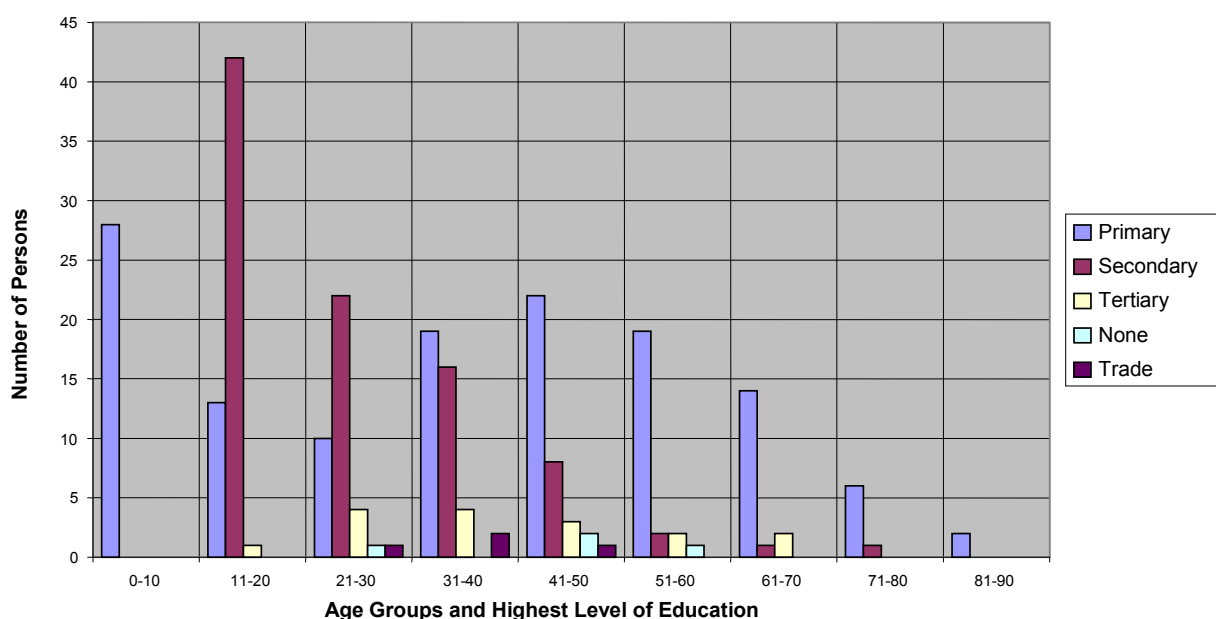


FIG 6: DISTRIBUTION OF HIGHEST LEVEL OF EDUCATION ATTAINED BY INDIVIDUALS FROM VARIOUS AGE GROUPS IN A SAMPLE OF THE COMMUNITY (N=249)

Of the 249 individuals represented in Fig 6, most individuals in all age groups except 11-20 and 21-30, had attained at most primary school education. The distribution for primary school education was bell shaped with a peak at the 41-50 age group. The distribution for the individuals with at least secondary education was skewed towards the younger age groups with a maximum in the 11-20 age groups and a minimum in the 81-90 age groups. Tertiary education was less prominent than secondary and primary education amongst the age groups. It was evident from the 21-30 age groups then tapered at the 71-80 age groups. In the various age groups, individuals who attained no formal education or were involved in a trade, was very insignificant.

It is important to note that the Speyside Village Council (personal communication, July 15th, 2004) cited a literacy problem in the area amongst adults and secondary school students (Appendix 6).

5.1.5. OCCUPATION DISTRIBUTION

Fig 7 shows the various occupations of persons interviewed in a sample of the community (N=178). Most individuals (45) were unemployed while the second most common occupation was in the public sector. The education field had the least (N=4) individuals.

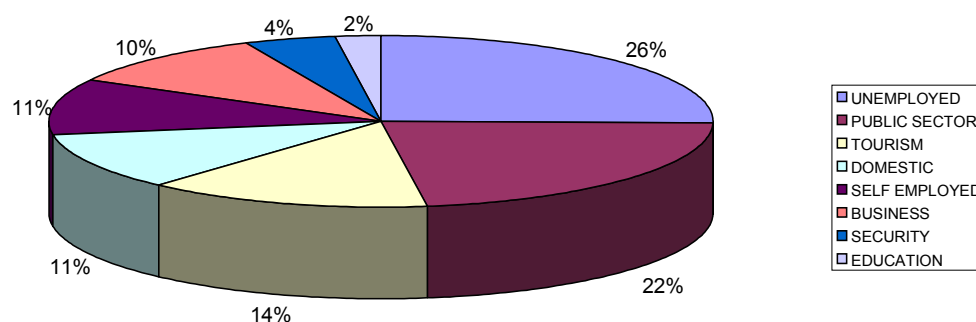


FIG 7: MAIN OCCUPATIONS OF STAKEHOLDERS INTERVIEWED (N=178) IN SAMPLE OF THE SPEYSIDE COMMUNITY

5.1.6. RESIDENCY TIME

Amongst the individuals interviewed in a sample of the Speyside community 55 resided in Speyside for 11-20 years and the least (N=3) resided in the area for 81-90 years (Fig 8).

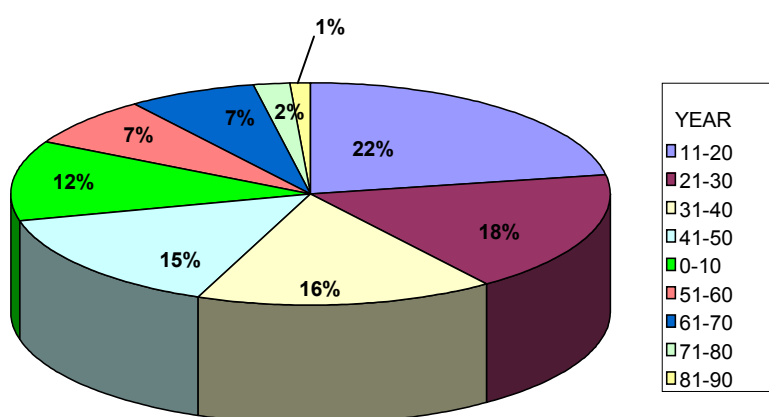


FIG 8: RESIDENCY TIME OF INDIVIDUALS INTERVIEWED IN A SAMPLE OF THE SPEYSIDE COMMUNITY (N=249)

5.1.7. ACCESS TO BASIC AMENITIES

Fig 9 shows that most persons interviewed (188) had access to electricity, 160 and 157 had access to a radio and TV respectively, 124 had phones and less than 86 persons had access to newspapers and internet or no amenities at all. It was noted by the Speyside Village Council (personal communication, June 15th, 2004) that newspapers were not sold in the village and although radios and televisions were present, the reception, with regards to local stations, was very poor. Observations of houses in the village noted that DirecTV satellite dishes (indication of cable or foreign TV stations) were common (Appendix. 7).

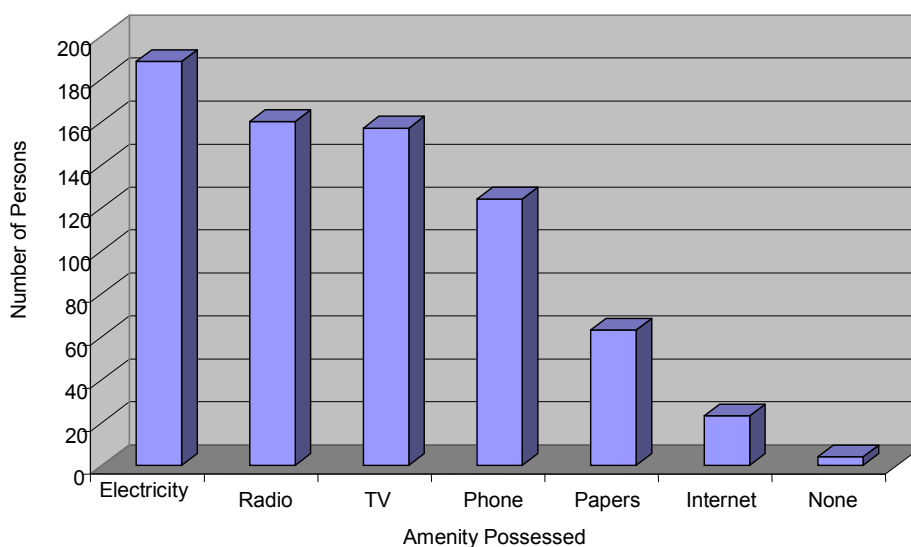


FIG 9: AMENITIES THAT INDIVIDUALS INTERVIEWED POSSESSED (N=249)

NOTE: figures may not add up to the sample size of 249 due to overlap, as each individual had access to more than one amenity.

5.1.8. METHOD THROUGH WHICH INDIVIDUALS LEARNT OF THE STUDY

Approximately half of the persons interviewed (N=127) were unaware of the study (Fig 10). The radio (N=58), followed by the PA (N=42) system, was the most popular method through which individuals interviewed learnt of the study. Fewer

persons heard about the study via fliers (N=17), 'word-of-mouth' (N=15), the TV (N=3) and a phone call (N=2). Newspapers (N=2) were the least popular method.

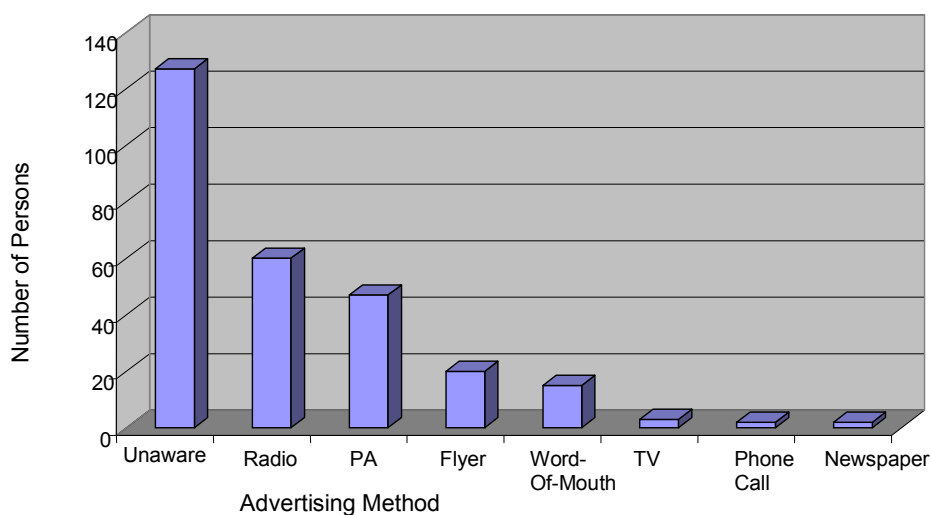


FIG 10: ADVERTISING METHOD THROUGH WHICH COMMUNITY MEMBERS INTERVIEWED LEARNED OF THE STUDY (N=249)

NOTE: figures may not add up to sample size of 249 as individuals learnt of study through more than one advertising method.

5.1.9. COMMUNITY GROUP INVOLVEMENT

Amongst the 140 residents interviewed, most (N=125) were not involved in community groups (Fig 11) and there was at least 1 person who participated in each of the following community groups: netball team, all-fours, music, youth group, party politics, senior citizens, Farmers Cooperative Society and the Village Council. Residents interviewed did not indicate participation in more than one group. Interviews with the Speyside Village Council (personal communication, June 15th, 2004) and residents verified that participation in community groups was limited, as interest in groups usually waned quickly.

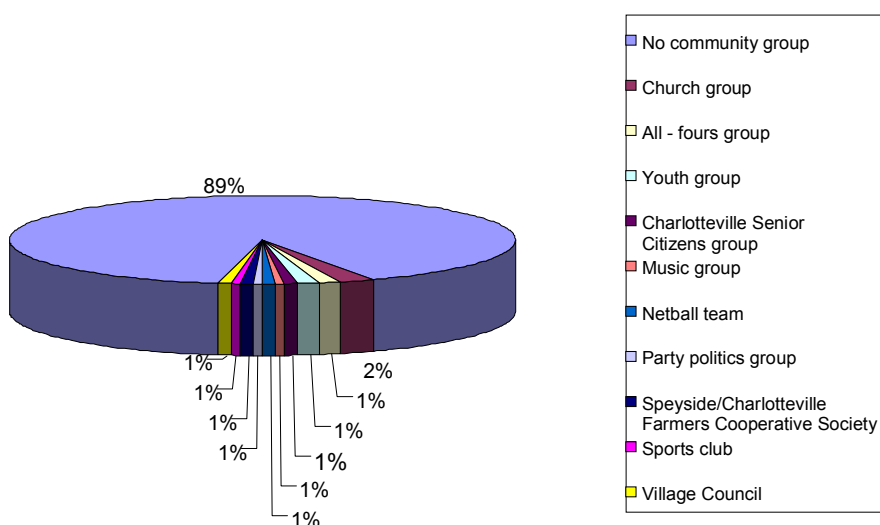


FIG 11: PARTICIPATION OF RESIDENTS (HOUSEHOLD INTERVIEWS N=140) IN COMMUNITY GROUPS

5.2. STATUS OF ENVIRONMENTAL EDUCATION

5.2.1. FORMAL EDUCATION PROCESS (SCHOOLS)

5.2.1.1. Proximity of Secondary School and Primary School Students to Speyside.

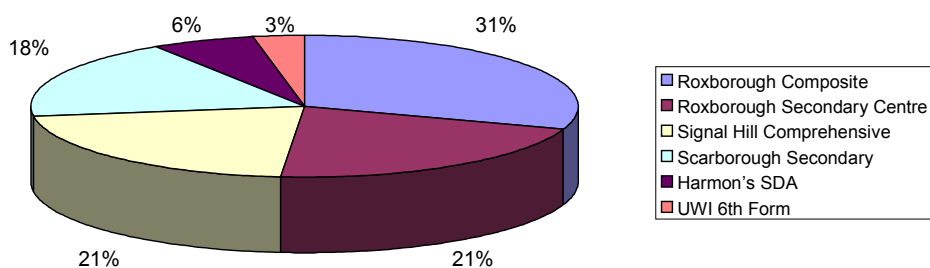


FIG 12: DISTRIBUTION OF SECONDARY SCHOOL STUDENTS INTERVIEWED FROM SPEYSIDE IN SCHOOLS IN TOBAGO (N=33)

Approximately 18 secondary school students interviewed attended schools in close proximity to Speyside, with 10 in Roxborough Composite and 8 in Roxborough Secondary Centre (Fig 12). The remaining 15 students attended the following schools: Signal Hill Comprehensive School; Scarborough Secondary School; Harmon School

of SDA and UWI 6th Form. All primary school students interviewed attended St. John's Anglican school in Speyside (N=38).

A new secondary school was being constructed on the beachfront in Speyside (Fig 13). Interviews with representatives from the Ministry of Education (personal communication, July 22nd, 2004) verified this and noted that the secondary school in Speyside is expected to teach approximately 200 students in Forms 1-5 from September 2004.



FIG 13: NEW SECONDARY SCHOOL BEING CONSTRUCTED ON THE BEACH FRONT AT SPEYSIDE

5.2.1.2. Ways through which Primary and Secondary Students were Introduced to Marine Environment

Approximately 30 students were introduced to the marine environment at home and through activities of household members (Fig 14). Some 20 students were introduced to it through school while 9 were unsure of how they were introduced to the marine environment. 7 stated that they were never introduced to the marine environment and 5 cited a combination of activities at home and school.

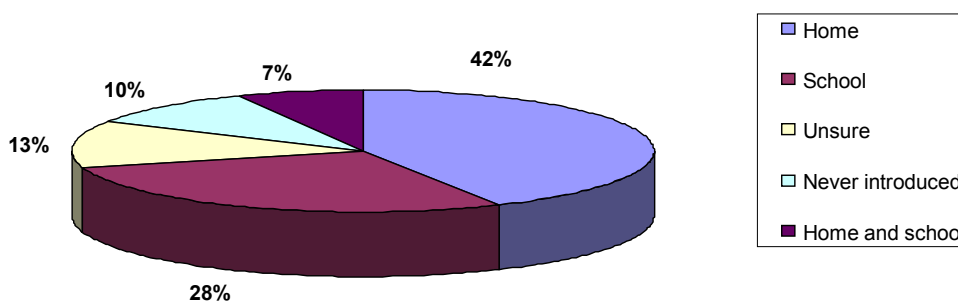


FIG 14: METHODS THROUGH WHICH PRIMARY AND SECONDARY STUDENTS INTERVIEWED (N=71) LEARNT OF THE MARINE ENVIRONMENT

5.2.1.3. Subjects which introduced primary and secondary students to marine environment

Table 5 shows that Science (Biology, Integrated Science) and/or Social Studies were the most popular subjects which introduced primary and secondary school students to the marine environment. Fewer secondary students learnt about the environment through Agricultural Science, English and Geography.

Mrs. Allard (personal communication, July 22nd, 2004) noted that there are plans by the Ministry of Education to introduce Environmental Education in Form 6. Currently, environmental education is a component of other optional subjects (Geography, Sciences and Social Studies) in Forms 1-5 and Mr. Franklin from the

Ministry of Education (personal communication, July 14th, 2004) noted that it is not formally taught in the primary school curriculum. Therefore, the Ministry supports initiatives by NGOs to introduce environmental education at the primary and secondary level, though it may not specifically at Speyside (personal communication, July 22nd, 2004).

TABLE 5: SUBJECTS THROUGH WHICH PRIMARY (N=38) AND SECONDARY (N=33) SCHOOL STUDENTS WERE INTRODUCED TO THE MARINE ENVIRONMENT

SUBJECT	(%)SECONDARY STUDENTS (N=33)	(%)PRIMARY STUDENTS (N=38)
Science	37	29
None	21	11
Social studies	18	24
Social studies, Science	9	28
Agricultural Science	6	0
English	3	8
Geography	3	0
Unsure	3	0
Total	100	100

5.2.2. COMMUNITY ADULT EDUCATION INITIATIVES

5.2.2.1. *Stakeholders' views on marine environmental education initiatives*

a. Need for Community Environmental Education

Most residents, teachers and secondary school students agreed that the community needed to learn more about the marine environment, while a few disagreed or were unsure (Table 6).

TABLE 6: RESPONSES OF INDIVIDUALS WHEN ASKED IF THE COMMUNITY NEEDED TO LEARN MORE ABOUT THE MARINE ENVIRONMENT (N=176).

STAKEHOLDER	RESPONSE (NUMBER OF PERSONS)		
	Yes	No	Unsure
Residents (N=140)	135	3	2
secondary students (N=33)	25	5	3
Teachers (N=3)	3	0	0

Teachers stated that marine environmental education was needed to increase awareness and understanding about the effects of the actions of the community on the marine resources and to encourage youths to take responsibility for its protection. Some secondary school students felt that marine environmental education was necessary for community development, to increase awareness, change behaviour, and encourage sustainable use. Teachers thought environmental education was inadequately taught in primary schools and should be taught and examined at the primary and secondary school level. Most (13 students) secondary school students thought that in schools, marine environmental education should be introduced in Form 1, while 7 were unsure and 5 said in primary school.

b. Participation in an Environmental Education Programme

TABLE 7: STAKEHOLDERS' WILLINGNESS TO SUPPORT, PARTICIPATE IN AND PASS ON INFORMATION LEARNT FROM AN EDUCATION PROGRAMME TO OTHERS.

STAKEHOLDER	RESPONSE (Number Stakeholders)					
	Support & Participate in an EE Programme			Willing to pass on information from an EE Programme		
	yes	no	unsure	Yes	no	unsure
Residents (N=140)	135	0	5	133	4	3
Hospitality (N=6)	6	0	0	6	0	0
Fishermen (N=9)	7	0	2	7	0	2
Restaurant Owners (N=4)	4	0	0	4	0	0
RTOs (N=8)	8	0	0	8	0	0
Craft shop owners (N=3)	3	0	0	3	0	0
DOs (N=5)	5	0	0	5	0	0
Secondary students (N=33)	33	0	0	29	2	2
Teachers (N=3)	3	0	0	3	0	0

All teachers, DOs, craft shop owners, RTOs, restaurant owners, hotel and guesthouse managers pledged their support for, and stated their willingness to encourage others to participate in an environmental education programme and to pass

on information on the environment to others (Table 7). All primary school students indicated their willingness to find out more about corals and the marine environment.

5.2.2.2. Stakeholders' Contribution to Community Marine Environmental Education and Conservation in Speyside

Most DOs, RTOs and fishermen did nothing to contribute to community marine education and conservation in Speyside (Table 8). However, 2 RTOs reduced rates for schools and locals and/or collaborated with NGOs in education programmes; and 1 DO offered free introductory dive courses to locals.

TABLE 8: CONTRIBUTION MADE BY STAKEHOLDERS TO COMMUNITY ENVIRONMENTAL EDUCATION AND CONSERVATION IN SPEYSIDE

CONTRIBUTION	NUMBER OF STAKEHOLDER		
	DO (N=5)	RTO (N=8)	Fishermen (N=9)
Nothing to contribute	4	5	9
Reduced rates (or free introductory dives) for locals and schools and/ or collaborated with NGOs on education programmes	1	2	0
Organized turtle patrols on islands during nesting season.	0	1	0

5.2.2.3. Methods of educating visitors and staff about the marine environment.

Fishermen did not provide training, briefings or reading material for visitors or staff on practices such as snorkelling, diving, fishing practices or reef trips; on impacts of poor boating practices; or encouraged the use of mooring buoys (Table 9).

TABLE 9: QUESTIONS POSED TO STAKEHOLDERS TO DETERMINE METHODS OF EDUCATING STAFF AND VISITORS ABOUT ENVIRONMENTALLY GOOD PRACTICES

QUESTIONS	RESPONSES			
	DO (N=5)	RTO (N=8)	Fishermen (N=9)	Craft Shop Owners (N=3)
1. Does your organization provide training, briefings or reading material for employees and visitors regarding good environmental practices for snorkelling, reef tours, diving, fishing practices?	yes	yes	yes	yes
2. Does your organization provide information for employees and visitors about impacts of motorized vessels and poor boating practices on coral reefs and marine environment?	yes	yes	yes	no
3. Do you educate staff and visitors about the negative impact of removing corals and marine life for consumption, sale or as souvenirs?	yes	yes	yes	yes
4. Are refresher and buoyancy control orientations done for new and out of practice divers to inform them of proper weighting and streamlining of gear?	yes	no	no	no
5. Do you use or support the use of mooring buoys? How do you encourage others to use mooring buoys?	yes	yes	yes	no
6. Do you educate staff and visitors about national laws protecting turtles and sea life?	no	yes	no	no

a. Provide reading material

TABLE 10: READING MATERIAL PROVIDED BY STAKEHOLDERS IN ENVIRONMENTAL EDUCATION INITIATIVES

Note: Percentages may not add up to 100% as responses are from several different questions posed to stakeholders

CONTRIBUTION	NUMBER OF STAKEHOLDERS			
	DO (N=5)	RTO (N=8)	Fishermen (N= 9)	Craft Shop Owners (N= 3)
Provide reading material (books) for staff and visitors on environmentally good practices for snorkelling, reef tours, diving, fishing practices	1	4	0	0
Provide books, brochures for tourists on negative impacts of removing coral and marine life for consumption, sale or souvenirs.	0	1	0	0

Reading material on environmentally good practices for snorkelling, diving, reef tours and fishing was provided by 1 DO and 4 RTOs (Table 10). Fishermen and craft shop owners stated that reading material was not provided. One RTO provided books or brochures on the negative impacts of removing corals and marine life for consumption, sale or as souvenirs.

b. Provide verbal briefings

Table 11 shows that RTOs and DOs contributed to environmental education and conservation by the following: verbal briefings were provided on the impacts of poor boating practices on the marine environment; verbal encouragement was given to others to use mooring buoys around the reef instead of anchoring; and verbal briefings were provided for visitors and staff on practices for snorkelling, diving, reef tours and fishing practices.

TABLE 11: VERBAL BRIEFINGS PROVIDED BY STAKEHOLDERS IN ENVIRONMENTAL EDUCATION INITIATIVES

Note: Percentages may not add up to total as responses are from several different questions posed to stakeholders

CONTRIBUTION	NUMBER OF STAKEHOLDERS			
	DO (N=5)	RTO (N=8)	Fishermen (N=9)	Craft Shop Owners (N=3)
Provide verbal briefings for staff and visitors on environmentally good practices for snorkelling, reef tours, diving, fishing practices	3	2	0	0
Provide verbal briefings for employees and visitors about impacts of motorized vessels and poor boating practices on coral reefs and marine environment.	2	3	0	NA
Verbally discouraged and educated staff and visitors on the negative impacts of removing corals and marine life for consumption, sale or as souvenirs.	5	5	0	1
Encourage others to use mooring buoys	3	5	0	NA

All DOs and 5 RTOs indicated that staff and visitors were verbally educated about the impacts of removing marine life for consumption, sale or as souvenirs. However, conch shells were evidently on sale in one craft shop (Fig 15). Fishermen did not provide any verbal briefings, while craft shop owners provided limited verbal briefings.

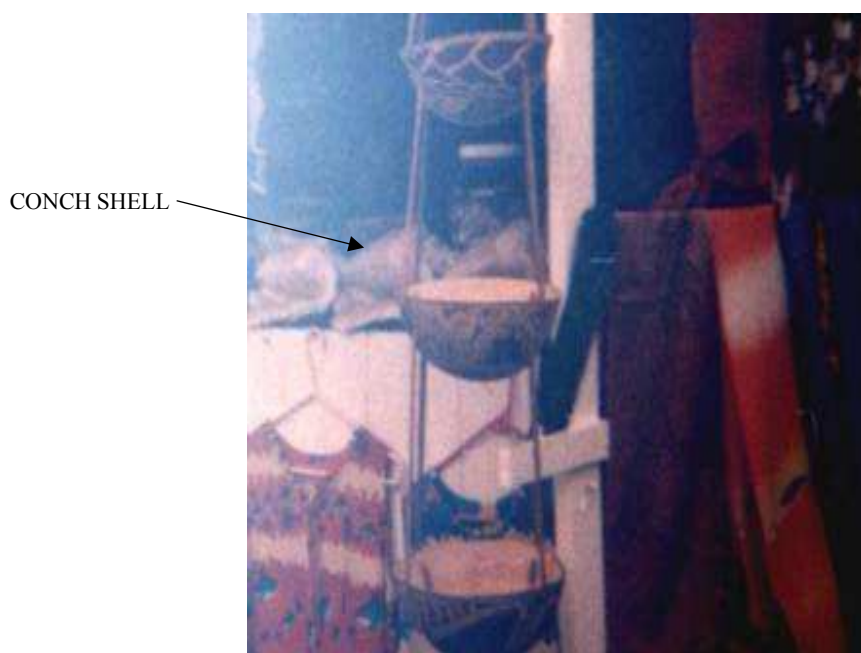


FIG 15: MARINE SPECIES (CONCH) ON SALE AT CRAFT SHOP AS SOUVINERS.

c. Provide Training (Staff and Visitor)

The only type of training offered by all DOs was visitor training in buoyancy control and refresher courses for divers who have not been diving for 1-2 years or more (Table 12). The fishermen and craft shop owners did not provide training for visitors or staff on fishing practices, use of mooring buoys or on the impacts of motorized vessels. RTOs had short teaching sessions for staff on practices when snorkelling, or on reef tours and also accompanied visitors; trained staff to abide by the code of conduct and educated visitors on the impacts of removing corals and

marine life for consumption, sale or as souvenirs; and trained employees on the impacts of motor vessels on reefs through the use of mooring buoys and markers, which indicated shallow snorkelling areas.

TABLE 12: TRAINING PROVIDED BY STAKEHOLDERS IN ENVIRONMENTAL EDUCATION INITIATIVES

Note: Numbers may not add up to total number stakeholders as responses are from several different questions posed to stakeholders.

CONTRIBUTION	NUMBER OF STAKEHOLDERS			
	DO (N=5)	RTO (N=8)	Fishermen (N=9)	Craft Shop Owners (N=3)
Provide training for staff and visitors on environmentally good practices for snorkelling, reef tours, diving, fishing practices	0	1	0	0
Provide training (training crew to use mooring buoys; to look out for divers near dive sites and to observe red markers which are used to restrict boating activities over shallow areas where visitors snorkel) for employees about impacts of motorized vessels and poor boating practices on coral reefs and marine environment.	0	3	0	NA
Train staff to abide by the code of conduct and discourage and educate visitors on the negative impacts of removing corals and marine life for consumption, sale or as souvenirs	0	1	0	0
Buoyancy control and refresher courses are provided near the shore or in pools, for divers who have not been diving for 1-2 years or more.	5	NA	NA	NA

5.2.3. NGO'S CONTRIBUTION TO ENVIRONMENTAL EDUCATION

5.2.3.1. Past, Present and Future Initiatives

Shurland-Maharaj (personal communication, 19th August, 2004) revealed that various stakeholders in Speyside (about 60 residents, teachers, and persons in tourism

sector) participated in three community environmental education workshops with a focus on coral reefs and the marine environment, organized by IMA in March and May 2003. Outputs from these workshops included educational reading material that was, designed to be updated, lodged and distributed in the Speyside community by the THA or educational organizations on an ongoing basis.

Sandy (personal communication, July 8th 2004) stated that during 1999-2001 the Department of Marine Resources and Fisheries conducted an environmental education programme in Speyside, with Standard 3, 4 and 5 students. The Department of Marine Resources and Fisheries has plans to address the Speyside community in the future. Clarke-Stanislaue of the Department of Natural Resources and the Environment (personal communication, July 14th, 2004) stated that her organization currently targets schools and communities in Tobago, but only upon request, focusing on the general environment and environmental laws.

Environmental education programmes are currently done by Buccoo Reef Trust (BRT), and Environment Tobago (ET), as part of an environmental education drive for the general population. Armstrong (personal communication, July 4th 2004) noted that since environmental education is not formally taught in the primary school curriculum, the BRT introduced it to Standard 3 in all schools in Tobago. Through this pilot programme, it was introduced to Standard 3 in Speyside, on an ongoing basis for the term May-July 2003 with plans to re-start in September 2004. BRT has a set list of topics to teach, with emphasis on the marine environment and coral reefs. Roberts (personal communication, July 14th, 2004) stated that ET has a set syllabus and teaches on requested topics in schools. These NGOs have plans to introduce environmental education at the secondary level in all schools.

5.2.3.2.Success and Responses Towards Initiatives

Armstrong (personal communication, July 4th, 2004) of BRT cited short term success of the programme among students and teachers while other organizations had no formal methods for evaluating success. Allard (personal communication, July 22nd, 2004) stated that initiatives taken by NGOs and other organizations were meaningful in promoting science, economics and the human influence on the environment in Tobago. Sandy of the Department of Fisheries and Marine Resources (personal communication, July 8th, 2004) noted that students and the community were responsive after initial wariness towards programmes conducted in Speyside.

5.2.3.3.Limitations and Requirements for Education Programmes

Representatives from organizations and NGOs cited a lack of financial, technological and human resources, transport, teaching aids such as visual aids, reading material and audiovisual equipment, as limitations for environmental education programmes in Speyside (Armstrong, personal communication, July 4th, 2004; Sandy, personal communication, July 8th, 2004; and Roberts, personal communication, July 14th, 2004). Anticipated problems included generating interest and participation from the community, changing attitudes and adapting a programme to suit the needs of all groups in the Speyside community. This required strong community contacts with belief in the environment, social and economic understanding of community dynamics, involvement of the Village Council, proper advertisement and execution and catering for the specific needs of the community (Sandy, personal communication, July 8th, 2004). Individuals interviewed from all organizations agreed that, although some collaboration exists amongst them, further

collaboration is necessary to increase community awareness of the economic value of resources and the most beneficial use of resources in Speyside (Armstrong, personal communication, July 4th, 2004; Sandy, personal communication, July 8th, 2004; and Roberts, personal communication, July 14th, 2004).

5.2.4. TOPICS TO BE ADDRESSED IN A COMMUNITY ENVIRONMENTAL EDUCATION PROGRAMME

Representatives from the Department of Marine Resources and Fisheries, NGOs and organizations identified the following issues to be addressed in an education programme: the importance and benefits of natural resources; reef conservation and ecology; solid waste management and disposal; MPA, its functions and impacts on stakeholders; participatory and reef to ridge management; poaching of birds, marine life; and overexploitation of fisheries (Armstrong, personal communication, July 4th, 2004; Sandy, personal communication, July 8th, 2004; and Roberts, personal communication, July 14th, 2004 and Clarke-Stanisclaus, personal communication, July 14th, 2004).

When asked what topics should be addressed in schools three teachers all stated that more information was needed on the coral reefs, the sea and pollution. Most secondary school students (22) thought there were no issues which needed addressing, while 3 were unsure (Fig 16). A small number of students identified other issues included littering, pollution from boats, the cost of reef tours and a combination of littering, spear fishing and breaking corals.

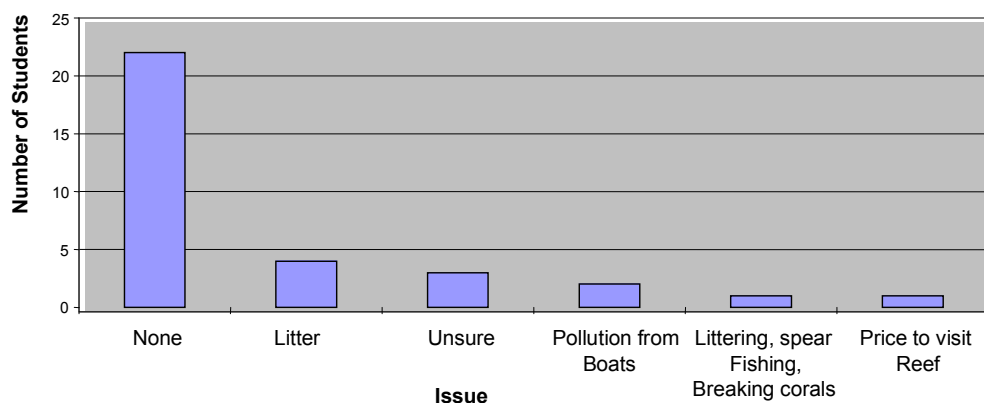


FIG 16: ISSUES STATED BY SECONDARY SCHOOL STUDENTS TO ADDRESS IN ENVIRONMENTAL EDUCATION PROGRAMME

5.3. COMMUNITY PERSPECTIVE OF ENVIRONMENTAL EDUCATION

5.3.1. APPROPRIATE RESPONSE TO INTERPRETATION OF THE MARINE ENVIRONMENT

Approximately 249 persons were asked what the term marine environment meant and the responses were represented in Table 13. In all stakeholder groups except primary students, over 50% of respondents associated the marine environment with (Category 1) the sea, reef, marine creatures and activities such as fishing, diving.

Most individuals interviewed in all groups except primary school students associated the marine environment with Category 1 (Table 13). Most primary students and 11 secondary students associated it with Category 2 (unsure). Primary school students knew: that corals provided a habitat for organisms; specifics on the growth rate; corals was associated with fishing and that corals lived in the sea. Amongst all other respondents, the least number of stakeholders were unsure (Category 2) of what the marine environment referred to.

TABLE 13: DEFINITION OF THE TERM MARINE ENVIRONMENT BY STAKEHOLDERS (N=249) IN THE COMMUNITY.

STAKEHOLDERS	RESPONSE OR DEFINITION OF MARINE ENVIRONMENT			
	Category 1	Category 2	Category 3	Category4
	Sea, reef, marine creatures, fishing & diving	Unsure	Surroundings	Inappropriate responses
Residents (N=140)	111	27	1	1
Fishermen (N=9)	9	0	0	0
DOs (N=5)	5	0	0	0
Craft shop Owners (N=3)	3	0	0	0
Hotel & guesthouse managers (N=6)	3	2	1	0
Secondary students (N=33)	20	11	1	1
Teachers (N=3)	3	0	0	0
Restaurant Owners (N = 4)	3	1	0	0
RTOs (N=8)	7	1	0	0
Primary students (N=38)	5	17	15	1

5.3.2. VIEWS ABOUT THE REEF

The responses of stakeholders to statements posed to determine their views on the reefs in Speyside are depicted in Table 14. Most residents and hospitality stakeholders thought that the reef in Speyside was in a good condition. Similarly, most residents, hospitality stakeholders and fishermen believed that coral reefs were important: in protecting the land from waves, for fishing and for future generations to enjoy. Although most fishermen and hospitality stakeholders disagreed with the statement about corals being important only if they were involved in fishing and diving, most residents agreed with this statement. Most residents and hospitality stakeholders believed that the marine environment in Speyside required protection, but most fishermen disagreed with this statement.

TABLE 14: RESPONSES OF RESIDENTS, HOSPITALITY STAKEHOLDERS AND FISHERMEN CONCERNING THEIR VIEWS ABOUT THE REEF IN SPEYSIDE.

STATEMENT / QUESTION POSED TO RESPONDENT	RESPONSE	RESIDENT (N=140)	HOSPITALITY (N=6)	FISHERMEN (N=9)
1. Describe the condition of the reef in Speyside.	Good	113	5	-
	Bad	3	0	-
	Unsure	24	1	-
2. Reef is important for protecting the land from waves	Agree	111	5	4
	Disagree	12	1	3
	Unsure	17	0	2
3. Fishing would be better if corals were cleared.	Agree	13	0	2
	Disagree	112	6	6
	Unsure	15	0	1
4. Corals are only important if you fish or dive.	Agree	90	2	1
	Disagree	40	4	8
	Unsure	10	0	0
5. I want future generations to enjoy coral reefs.	Agree	130	6	7
	Disagree	3	0	2
	Unsure	7	0	0
6. Do you think the marine environment in Speyside needs protection?	Yes	94	4	4
	No	36	2	5
	Unsure	10	0	0

The residents and fishermen suggested the following methods for the protection of the marine environment: patrols and the monitoring of catch, use and removal of marine life. Residents additionally suggested community education and management initiatives, enforcement of laws especially for littering, restricting fishing activities on the reef and addressing sewage and wastewater disposal. Hospitality stakeholders also suggested public education, restricting anchoring on reefs, monitoring land use and enforcement of laws.

5.4. PRACTICES AMONG FISHERMEN, DIVERS AND REEF TOUR OPERATORS

5.4.1. FISHING METHODS

The fishermen in Speyside used a several methods for fishing (Table 15) or a combination of methods. Several line fishing techniques were used by most fishermen including trolling, banking, a-la-vive (live bait) and towing (Appendix 8). Fewer

fishermen used spear fishing, rock fishing, filleting and ‘calling’ methods (sea birds are used to determine the location of fish, then a line fishing technique is used). All fishermen stated that monofilament lines and seines were not used in Speyside. It was indicated that most fishing was done in deeper waters beyond the reefs and that fishermen supported the use of mooring buoys as alternatives to anchoring.

TABLE 15: FISHING METHODS USED BY FISHERMEN (N=9) IN SPEYSIDE

FISHING METHOD	# FISHERMEN
Trolling and banking	3
Towing	3
Filleting, spear fishing, rock fishing	1
Line fishing and trolling	1
Trolling, banking, line fishing, live bait, calling	1

5.4.2. DIVING METHODS AND PRACTICES

All DOs indicated that drift diving was the main form of diving practiced and as a result, moorings were not required for their boats. Skin diving was also practiced. Reef markers were absent and a few DOs did not support their use, stating that the reef was too deep to cause damage to or be damaged by boats. It was further pointed out that the location of the reef was known by local users of the reef and that the introduction of reef markers will encourage outsiders to operate in Speyside.

5.4.3. PRACTICES OF RTOs

Allowed visitors to snorkel, did tours of island, reef. Most RTOs indicated that reef moorings were used as alternatives to anchoring over shallower reef sites. Equal numbers of RTOs supported and did not support the use of reef markers. It was stated that the reef was too deep and the location of the reef was known by locals, therefore markers were unnecessary.

5.4.4. USE OF BOAT ENGINES

TABLE 16: DIFFERENCES BETWEEN BOAT ENGINES, AS SPECIFIED BY FISHERMEN, RTOs AND DOs INTERVIEWED IN SAMPLE.

RESPONSES	NUMBER OF STAKEHOLDERS		
	RTO (N=8)	DO (N=5)	Fishermen (N=9)
2-stroke and 4-stroke engines used 2 plugs and 4 plugs respectively.	3	2	9
4 stroke used more diesel and was for heavy duty boats	1	1	0
Don't know	4	2	0

Fishermen, DOs and RTOs noted that the difference between 2- stroke and 4-stroke engines (Table 16) was: 2-stroke had 2 plugs and 4-stroke had 4 plugs; 4-stroke used diesel and was for heavy duty boats; and 2-stroke was cheaper. All fishermen and most RTOs and DOs used 2-stroke engines while a few RTOs and DOs were unsure about the type of engines used (Table 17).

TABLE 17: TYPES OF ENGINES USED BY FISHERMEN, DOs AND RTOs INTERVIEWED IN SAMPLE.

TYPE OF ENGINE USED	NUMBER OF STAKEHOLDERS		
	RTO (N=8)	DO (N=5)	Fishermen (N=9)
2 stroke engine	7	3	9
4 stroke engine	0	1	0
unsure	1	1	0

5.4.5. SOLID WASTE DISPOSAL

All fishermen, RTOs and DOs stated that the following steps were taken in the disposal of solid waste. Fishermen (3) stated that public bins which were cleared by trucks three days per week were used to discard old nets and lines. 2 fishermen recycled reused nets for other purposes, and 1 did not discard old nets. All DOs and RTOs stored solid waste on boats then disposed of the waste in public bins on return

to land. Despite these measures, it was observed (Fig 17 (a-d)) that a solid waste disposal problem existed in Speyside. It was observed that solid waste was disposed of in drains, on roads and on the beach front (Fig 17(a-c)). Although 3 fishermen stated that seines were not discarded as they were not used in Speyside, Fig 17 (d) shows that nets were discarded on the beach front. A few craft shop owners and residents used compost heaps and burnt waste while 6 residents recycled glass bottles.



(a)



(b)



(c)



(d)

FIG 17: SOLID WASTE DISPOSED OF IN DRAINS LEADING TO THE SEA (a), ON ROADS (b) AND ON THE BEACH FRONT NEXT TO A REEF TOUR OPERATION (c). SEINE NETS DISPOSED OF ON THE BEACH FRONT (d)

5.4.6. CHEMICAL WASTE DISPOSAL

All RTOs, DOs and six fishermen stated that the following steps (Table 18) were taken in the disposal and use of chemicals (fuel) in order to prevent accidental discharge into the marine environment: chemicals were not used on boats or in maintenance; fuel and chemicals were securely stored in boats then were later disposed of on land; chemicals were not disposed of on the reef and refuelling was not done on the reef.

TABLE 18: PRACTICES OF RTOs, DOs AND FISHERMEN TO DISPOSE OF AND USE CHEMICALS AND FUEL ON THE MARINE ENVIRONMENT.

PRACTICES	NUMBER OF STAKEHOLDERS		
	Fishermen (N=6)	DO (N=5)	RTO (N=8)
Did not use chemicals in boats (except soap in snorkel masks) and in maintenance.	3	5	2
Securely stored chemicals and fuel on boats, which were later disposed of on land	0	0	3
Did not dispose of chemicals or refuel on the reef.	3	0	3

5.4.7. SEWAGE AND WASTE WATER DISPOSAL

All Hospitality stakeholders, most residents and no fishermen (Table 19), stated that steps were taken to ensure the sewage and wastewater were not disposed of in the marine environment. Cesspits and/ or soak away systems were used by the sample of hospitality stakeholders and residents interviewed while 1 hospitality stakeholder indicated that there are plans to improve sewage disposal by installing a private ozone filtration system and sewage treatment plant. Fishermen in the fishing facilities and 12 residents stated that drains were used to allow wastewater to enter the marine environment.

TABLE 19: MEASURES TAKEN BY RESIDENTS, FISHERMEN AND HOSPITALITY STAKEHOLDERS TO PREVENT SEWAGE AND WASTEWATER FROM ENTERING THE MARINE ENVIRONMENT

MEASURES USED	NUMBER OF STAKEHOLDERS		
	Fishermen (N=9)	Residents (N=140)	Hospitality (N=6)
No measures taken	9	130	0
Use of cesspits	0	0	5
Soak away systems	0	0	1
Cesspit and soak away system	0	10	0

5.5. VARK LEARNING PREFERENCES

The VARK learning preferences of 249 individuals interviewed in the community are represented in Fig. 18. It is shown that while 33% were multimodal, a large proportion of individuals had a single learning preference, including Aural, Kinesthetic and Read and Write. The smallest proportion (3%) was Visual.

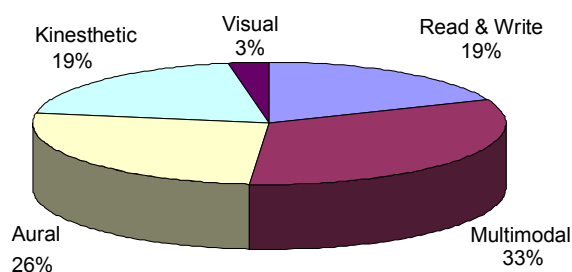


FIG 18: VARK LEARNING PREFERENCES FOR INDIVIDUALS INTERVIEWED IN THE COMMUNITY (N=249)

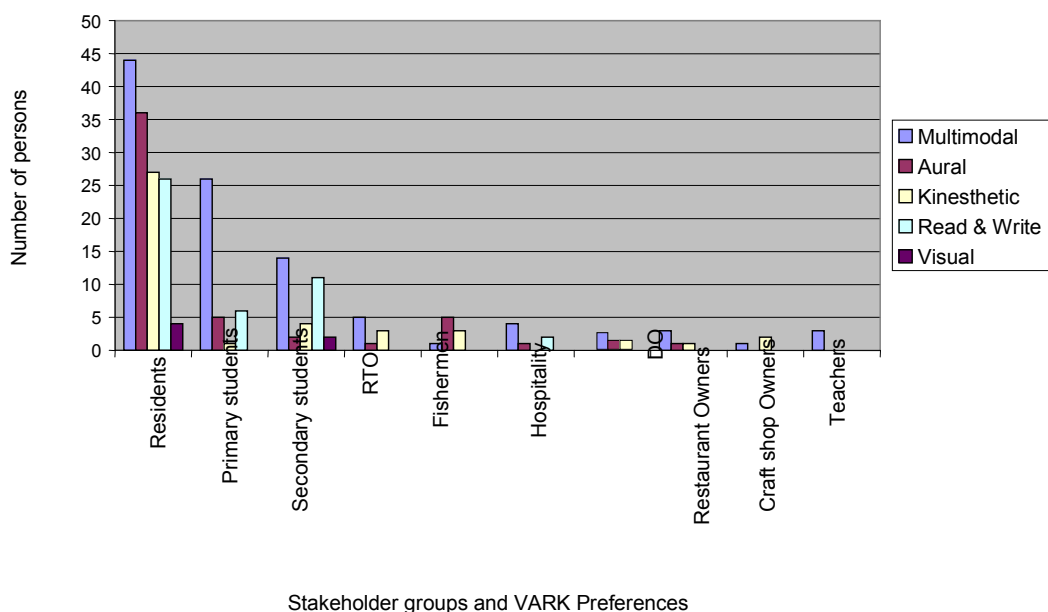


FIG 19: VARK PREFERENCES OF DIFFERENT STAKEHOLDER GROUPS IN THE COMMUNITY (N=249)

The VARK preferences of the different stakeholder groups interviewed in the community are shown in Fig 19. The multimodal preference was noted in all groups but the Visual preference was noted only amongst residents and secondary students. The Read and Write learning preference was only noted amongst the hospitality, residents, primary and secondary students groups. In all groups except fishermen and craft shops, the multimodal preference was the most popular. Fishermen had an Aural preference, while craft shop owners had a Kinesthetic preference and teachers were exclusively multimodal.

Of the 33 secondary school students interviewed, Fig 20 shows that Multimodality and the Read and Write preferences were evident in all age groups except 19-20 and Multimodality was dominant in 13-14 and 17-18 age groups. The 19-20 age group was exclusively Kinesthetic. The Kinesthetic preference was also

evident in the 13-14 age group. The 11-12 age group had equal numbers of persons with the Aural, Kinesthetic and Read and Write preference.

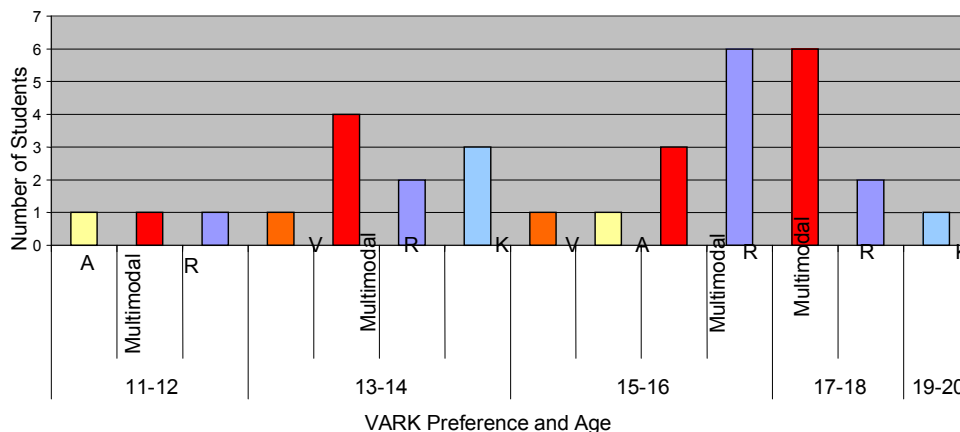


FIG 20: VARK PREFERENCE AND AGE DISTRIBUTION OF SECONDARY SCHOOL STUDENTS (N=33)

Fig 21 shows that no primary school students had a Visual preference. Multimodality was dominant in all age groups except in the 11-12 age group where Read and Write was dominant. The Aural preference was evident all age groups while the Kinesthetic preference was found only in the 9-10 age groups.

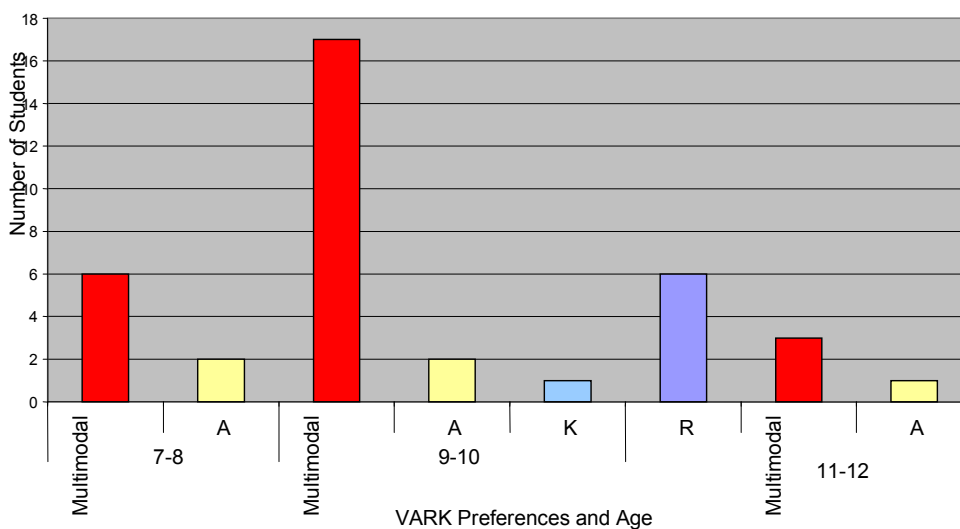


FIG 21: VARK PREFERENCES AND AGE DISTRIBUTION OF PRIMARY SCHOOL STUDENTS (N=38)

6. DISCUSSION AND RECOMMENDATIONS

6.1. SOCIOECONOMIC CHARACTERISTICS

The socioeconomic profile of the individuals in the sample of the Speyside community identified the following socioeconomic characteristics and noted the major trends. It was noted that most individuals in all age groups, had attained at least primary school education, while more persons in younger age groups attained at least secondary education and tertiary education was very uncommon. Further investigations can be done to identify and verify reasons for this trend in education levels including access to primary and secondary educational institutions in Speyside and neighbouring communities over time; the current ability to easily access distant secondary schools through the public transport service and special attention must be paid to the literacy problem cited in the area. The educational level and the literacy level will influence the material used in the delivery of an environmental education.

Most persons had access to the basic amenities such as electricity, radios, TV, phones but limited access to Internet and newspapers. The access to basic amenities may give an indication of the level of infrastructural and socioeconomic development in the area. Although most of the community was not aware of the advertised study, those who knew of the study, heard about it mainly through the radio or the PA system and fewer read about it in the newspapers or flyers. It should be noted responses from individuals sampled may have been inaccurate given the example where it was stated that TV was one method through which stakeholders learnt of the study but this method was not in advertising the study.

This may be a reflection of the existing condition of the amenities in the area and possible preferences for acquiring information, as there is poor radio and TV reception in the area and newspapers are not sold in the area. This limited communication between Speyside and the rest of the country. This in turn can influence the design of a communication system when developing an environmental education programme in that the mode of advertisement, information transfer and delivery of the programmes can be limited. However, further in-depth studies on advertisements and information transfer are required in order to assist in the design of an education programme.

Several community groups were identified in Speyside, in addition to a low participation rate and rapid loss of interest by community members (Speyside Village Council, personal communication, July 15th, 2004). This raised issues about group dynamics in the area. Several factors can be hypothesised and investigated to determine their contribution to the poor group dynamics in Speyside including: the presence of various religious denominations; the presence of more individuals in the younger age group; and the various occupations in the area. Age is an important factor which can inform the development of programmes as it gives an indication of the age range of the target group and thus the level at which the teaching material can be delivered. It also limits the development of an education programme as it can create incompatible interactions among participants of different ages.

A point to note was that most persons interviewed in the sample population were unemployed. Further research should be conducted to verify and monitor this condition in Speyside and to pinpoint the reason for this as it may be linked to factors such as education level of individuals, the economic standing and development of the

area and possibly illegal sources of income or the unavailability of jobs in the area. However, the numerous occupations identified in Speyside should be considered in the design of programmes as an individual's perception of the environment may be influenced by the daily interaction of the individual with the environment. The nature of occupations in the area may influence the time frames for implementing an environmental education programme. The residency time of most individuals in the community ranged from 11-50 years and this can affect the perceived importance of the marine resources and how it is viewed and used. These trends can produce some conflict or affect group dynamics but verification of these hypotheses is required through research.

The existing socioeconomic conditions in an area can serve as a limitation or strength in the development of an environmental education programme for Speyside. These conditions influence the attitudes, perceptions, practices and learning preferences of individuals in a community and must be considered in the design of any education programme. It should be noted that the socioeconomic profile was generated for 22% of the entire Speyside population in order to identify the socioeconomic characteristics which may influence the design of an environmental education programme. This approach was not reflective of the entire population of Speyside and only served to highlight possible trends amongst a sample of stakeholders in the community. Trends should be followed up and verified through further research and continuous monitoring of highlighted socioeconomic conditions, in order to determine the relationship between these conditions, the use of the marine environment and effects on the design of environmental education programmes for Speyside.

6.2. VARK LEARNING PREFERENCE OF COMMUNITY TO DETERMINE PREFERRED MODE OF INFO TRANSFER.

Most of the individuals interviewed in a sample of the community in Speyside had a multimodal learning preference but all the single learning preferences were also present in the community, with the Visual and Aural mode being the least and most common respectively. Thus, to capture the majority of individuals, all learning preferences should be utilized for the design of an education programme, but emphasis needs to be placed on single learning preferences for the following stakeholder groups:

- Primary stakeholders (RTO, DO, Fishermen) need to emphasize Aural and Kinesthetic preferences.
- Secondary Stakeholders with indirect use (Hospitality, Restaurant, Craft shops) - need to emphasize Aural, Kinesthetic and Read and Write Preferences.
- Secondary Stakeholders with effects on resources (Residents, Teachers, Secondary and Primary school students) - need to emphasize Aural, Read and Write and Kinesthetic preferences and additionally Visual preferences for secondary students and few residents.

Further research is needed in order to identify and verify the relationship between the learning preferences of the individuals in the area and the activities of the stakeholders, their access to amenities, their occupation and their daily experiences. These VARK preferences can be reflected in Speyside via the following modes of transfer of information through the specific teaching methods (IMA 1999, 2002; VARK Website, 2004 & Appendix 6):

- Informal, discussion-based lectures, tutorials. Encourage peer teaching and oral presentations on topics derived from group discussions. Music can also be used as a medium for delivering lessons and in presentations by participants.
- Field trips and hands-on experience. Introduce participants to diving especially at the primary and secondary school level since in Speyside the resources are available with support from local DOs. Field trips should be conducted with participants to different parts of Tobago, showing the different ecosystems and effects of human activities and development. This will emphasize the importance of their marine resources. Design and participation in clean up campaigns which target Speyside and neighbouring villages. Encourage participants to produce models which can be used as teaching aids. Skits and plays should be encouraged. Role playing should also be integral to introduce the participants to problem solving.
- Essay and report writing and short stories for projects in order to develop the skills of note taking and putting ideas on paper. Use of handouts and readings are also encouraged. Encourage the writing or depiction of historical information in the form of stories and diagrams for projects; reading of newspapers and the collection (newspaper archive) and discussion of marine related topics from newspapers. This would generate a “market” for newspapers in the area. Use of the Internet as a research tool should be encouraged.
- Videos on characteristics and functions of reefs, threats to marine resources and the concept of MPAs in conjunction with discussions. Encourage participation in the creation of videos and documentaries on Speyside; the use of art, pictures, charts, graphs and diagrams in poster presentations on topics discussed.

- Group projects focusing on management, to foster team building and problem solving techniques.

The VARK learning preferences should be considered in conjunction with the conditions identified in Speyside to ensure that proper communication systems and teaching methods are employed in environmental education programmes.

6.3. STAKEHOLDER PERSPECTIVE ON THE MARINE ENVIRONMENT IN SPEYSIDE

Most persons interviewed adequately associated the marine environment with coral reefs, marine creatures and related activities. A point of concern was the fact that primary and secondary students were either unsure or associated the marine environment with the surroundings. It is recommended that more emphasis be placed on primary and secondary students in environmental programmes. Most residents, hospitality and fishermen recognized the importance of the marine environment in terms of the benefits that can be derived and the existence value and functions of the reef and believed that the reef was in a good condition and needed protection.

It must be noted that most residents thought that the marine environment was important only if involved in fishing or diving; and most fishermen and some residents thought that the reef did not need protection. It was surmised that although the reef was valued among direct users, stakeholders who do not directly use the reef believed that it is only valuable if they benefit from it. This view by the indirect stakeholders can consequently result in activities that are harmful and hinder efforts to conserve the reef. Thus, it is recommended that an environmental education programme be implemented to improve awareness levels and attitudes of persons towards the marine environment.

6.4. STAKEHOLDER PRACTICES THAT AFFECT THE MARINE ENVIRONMENT

The practices of several direct users seemed to reflect some awareness about the effect of their activities on the marine resources. However, although RTOs, DOs and fishermen stated that some measures were taken to ensure that solid waste disposal done in an environmentally friendly manner, this was not reflected in observations which showed a disposal problem in the area.

Although hospitality and some residents stated steps were taken to reduce sewage and wastewater from entering the sea, other residents and fishermen cited the use of cesspits and drains as preventative measures. This implies that there were inconsistencies in awareness of the effects of their actions on the marine environment and a need to translate knowledge and awareness about their activities on the marine environment into actions. It is therefore recommended that in an environmental education programme, measures be implemented to focus on addressing these problems and raising awareness of the impacts of actions on the environment.

The future plans by one hotel to build a wastewater treatment plant using ozone filtration technology may be unrealistic but it shows that there was awareness of environmentally friendly technology. This is not the case with DO, RTO and fishermen who used 2 stroke engines and were either unaware or did not state the environmental benefits of using a 4-stroke engine.

However, DOs and RTOs used environmentally friendly methods such as drift and skin diving, snorkelling, and use of reef markers (to avoid anchoring). Reef markers were not supported by some RTOs and DOs as they cited loss of income due to competition by outsiders who will now know the location of the reef but they did not note the conservation function of the reef markers. Fishermen stated that fishing

was done outside of the reef and they supported the use of mooring buoys and no anchoring. The destructive fishing methods such as spear fishing was said to occur on a lower scale and seining or use of monofilament nets did not occur at all. All RTOs, DOs and most fishermen stated that measures were taken to prevent chemical pollution of the marine environment. Some actions of stakeholders were supported or refuted by observations in Speyside, while others could not be verified. One recommendation is that an education programme target the problems identified and seek to address discrepancies; and additionally establish a monitoring system to ensure that knowledge and awareness is translated into action by stakeholders.

6.5. THE STATUS OF ENVIRONMENTAL EDUCATION IN SPEYSIDE

Environmental education was taught in the form of limited components of existing subjects in Forms 1-5 and there are plans to introduce it in Form 6 at the secondary level, but in primary schools it is not taught in the curriculum. Amongst the students in Speyside, secondary education was attained mainly from secondary schools in neighbouring villages. Although a secondary school was being constructed in the area to accommodate students in Forms 1-5 students, students attending this new school will not benefit from this formal process in terms of environmental education.

At the primary school in Speyside, in the past and recently, environmental education was delivered by mainly two NGOs, DNRE and Fisheries, but few programmes were on an ongoing basis. Secondary students had little exposure to it and the community in Speyside was targeted on a very limited, discontinuous basis. Organizations conducting these programmes cited success but only one organization

conducted some type of formal evaluation. Currently students learnt about the environment through personal interactions and activities of household members.

Thus an education programme targeting the entire community is needed in order for both adults and students to benefit. Given the fact that various organizations have past and present experiences in the field of environmental education, it is suggested that an environmental education programme targeting the community in Speyside will be successfully developed and implemented through a collaborative effort. Not only was there a need for community environmental education but there was also the need for an evaluation system to be established in order to ensure that lessons are learnt from failures and successes of existing programmes.

In addition to collaboration, in order to produce a community programme for Speyside, strong community contacts, social and economic understanding of the community dynamics, Village Council involvement, proper advertisement and execution catering to the specific community needs were required (Sandy, personal communication, July 8th 2004). Some organizations visited Speyside community to conduct environmental education programmes only upon request due to a lack of financial, human and technical resources (Roberts, personal communication, July 14th, 2004). It was noted that in the Speyside community possible problems may also arise including generating interest, participation, changing attitudes and adapting the programme to suit the community needs.

Topics were suggested by NGOs, GOs and stakeholders to be focused on in an environmental education programme for the Speyside community ranging from waste management to reef ecology and environmental management through the use of marine protected areas.

The stakeholders interviewed from the sample of the community agreed that there was a need for community environmental education programme which should be examinable in primary and secondary schools and pledged their support for and willingness to participate in such programmes. Having recognized this need most RTOs and a few DOs took some initiative in promoting environmental education in the community, in primary schools, among staff and visitors through verbal, written and training methods. Fishermen did not take any initiatives to promote environmental education. However, these initiatives were limited and observations either contradicted this or highlighted the ineffectiveness of such methods as marine species were noted on sale in a craft shop although verbal initiatives were taken to deter this. There is a need for the community to become more involved in promoting environmental education.

7. CONCLUSION

The nature of the qualitative study, the sample size and approach limited the scope of the findings and the objectives which were achieved. Although the study could identify characteristics and highlight trends, it could not adequately verify the relationship that existed between identified factors. However, the study was successful in identifying the socioeconomic characteristics of Speyside and note trends to be addressed in future studies; evaluating the status of environmental education in Speyside; obtaining the stakeholders' perspective on the marine environment in Speyside; highlighting practices amongst stakeholders that affect the marine environment and the VARK learning preferences of the primary and secondary stakeholders in Speyside.

One recommendation was that further research; monitoring and in-depth analysis is required in order to adequately verify information and conclusions obtained, as several discrepancies were noted and to establish relationships between identified factors and the use of the environment. Overall the factors that contribute to an environmental education strategy for the Speyside community were investigated and recommendations were made for the development of future programmes and to enhance existing environmental education initiatives, tailored to the stakeholders in Speyside.

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9. APPENDICES

Appendix 1: Guiding Principles for Environmental Education adopted from the Tbilisi Conference (1977). Source: UNEP, 2004.

“The basic principles guiding programmes for environmental education should:

- consider the environment in its totality- natural and built, technological and social (economic, political, technological, cultural-historical, moral aesthetic);
- be a continuous lifelong process, beginning at the pre-school level and continuing through formal and non-formal stages;
- be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- relate environmental sensitivity, knowledge, problem solving skills and values clarification at every age, but with special emphasis on environmental sensitivity to the learner’s own community in early years;
- help learners discover the symptoms and real causes of environmental problems;
- emphasize the complexity of environmental problems and thus the need to develop critical and problem-solving skills;
- utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first hand experience.”

Appendix 2: Background Factors in the Development of a Process for Environmental Education. Source: (Stapp and Crowfoot, 1980)

The background factors to consider in the development of a national level process for environmental education are:

- **Existing interest and commitment to environmental education-** high commitment and interest encourages more ambitious, elaborate plans but interests of educational and political leaders, citizens, professional educators, and natural resources and environmental professionals must be identified.
- **Experience in planning and management of educational efforts.** Contributing factors can be identified and lessons can be learnt from successes, failures or effective efforts, by examining past experience.
- **Past experiences with environmental education** vary in different areas and some cases would have been evaluated. These experiences are to be learned from and improved upon.
- **Available and potential resources** including leadership, implementation organizations, money and materials. It is important to use persons from the local and regional levels as well as policy areas and to assess the amount of time, travel and preparation needed.
- **Overall barriers and facilitating forces for developing a national strategy.** An assessment of barriers should include:
 - i. Identify political or educational opponents of environmental education
 - ii. Missing resources: expertise, money
 - iii. Critical past failures in educational planning or implementation
 - iv. Existing national, regional and local conditions that inhibit environmental education.

Identification of assets of a country has for planning and implementing environmental education should include:

- i. Influential individuals prepared to contribute actively.
- ii. Available resources of money, skilled people and materials
- iii. National educational planning successes
- iv. Evaluated environmental education experiences
- v. The level of interest and understanding of environmental and resource problems and their integral relationship to the social welfare of the citizenry.

Appendix 3 (a): Sample of Household Interview Questions Conducted with Residents

1. What is your age?
2. Note the individual's gender
3. What is your highest level of education?
4. What is your religion?
5. What is your ethnicity or race?
6. What is your occupation?
7. How long have you been living in this area?
8. How did you hear of our visit?
9. Please indicate which of the following you have access to and use : electricity, phone, TV, radio, Internet, newspapers
10. What do you understand by the term marine environment? INTERVIEWERS: give examples if respondent unsure- coral reef, fish.
11. Please state whether you : (1) Disagree, (2)Neutral, (3)agree
 - a. The reefs are important for protecting land from waves.
 - b. Fishing would be better if we cleared the coral.
 - c. Corals are only important if you fish or dive.
 - d. I want future generations to enjoy the coral reefs.
12. Please describe the condition of the marine environment? Good, Bad, Unsure
13. Do you think the marine environment in Speyside requires protection?
14. What do you think is a good way to protect the marine environment in Speyside?
15. How do you try to prevent sewage, wastewater and garbage from your home from entering the marine environment?
16. Are you involved in any community group?
17. Do you think that the community in Speyside needs to learn more about the marine environment?
18. Would you support and encourage other villagers to participate in a marine environmental education programme? Please give a reason.
19. Would you be willing to pass on anything learnt in the marine environmental education programme to tourists and visitors?

Appendix 3 (b): Sample of Interview Questions Conducted Dive Operators

1. What is your age? Note the individual's gender
2. What is your highest level of education?
3. What is your religion?
4. What is your ethnicity or race?
5. What is your occupation?
6. How long have you been living / operating in this area?
7. How did you hear of our visit?
8. Please indicate which of the following you have access to and use : electricity, phone, TV, radio, Internet, newspapers
9. What do you understand by the term marine environment? INTERVIEWERS: give examples if respondent unsure- coral reef, fish.
10. Please list the dive operators in Speyside.
11. How do you use the marine environment in Speyside? (methods)
12. Does your dive operation provide training, briefings or written material for employees and tourists about things they should and should not do when snorkeling and diving? How?
13. Does your dive operation provide information for employees and visitors about the impacts of motorized vessels and poor boating practices on coral reefs and other marine environments?
14. How does your dive operation educate staff and visitors about the negative impacts of removing corals and marine life from the reef for consumption, sale or as souvenirs?
15. Do you educate staff and visitors about national laws protecting turtles and sea life?
16. Are refresher and buoyancy control orientations done for new or out of practice divers to inform them about proper weighting and streamlining of gear? How is this done?
17. How do you prevent fuel, cleaning chemicals and waste substances from accidentally entering the marine environment while at sea or doing repairs when dry-docked?
18. What steps does your dive operation take to limit discharging garbage, solid waste and wastewater from boats?
19. What is the difference between a 2-stroke and 4-stroke engine?
20. What type of boat engine does your dive operation use? 2 stroke or 4 stroke? Why?
21. Do you use and encourage others to use mooring buoys?
22. Would your dive operation support the use of marker buoys to show the location of reefs? Why?
23. How does your dive operation contribute to marine environmental education, protection and marine awareness in Speyside? Is the Speyside community involved?
24. Would you support and encourage your staff to participate in a marine environmental education programme? Why?
25. Would you be willing to pass on any of this knowledge to visitors, the community and schools?

Appendix 3 (c): Sample of Interview Questions Conducted with Primary School Student

- 1) How old are you?
- 2) Note the individual's gender
- 3) What is your religion?
- 4) What is your ethnicity or race?
- 5) What class are you in?
- 6) How long have you been living in this area?
- 7) How did you hear of our visit?
- 8) What do you think "environment" means? Give some examples
INTERVIEWERS: give examples if respondent unsure.
- 9) What do you know about coral reefs in Speyside? How?
- 10) Do you think that anything you do will affect the sea and corals in Speyside?
- 11) Do you think the coral reefs in Speyside need protection?
- 12) What do you think is a good way to protect the marine resources/environment in Speyside?
- 13) How do you think you can help keep the corals safe?
- 14) What subjects in your school teach you about the environment and coral reefs?
- 15) Do you take part in outings and field trips?
- 16) Which do you prefer learning in the class or outdoors?
- 17) Would you like to find out more about the environment and coral reefs? Why?
- 18) Will you tell others about the coral reefs when you learn more about them?

Appendix 4(a): General VARK questionnaire used on all adult stakeholders interviewed in the Speyside community. *Copyright for this version (General) of VARK is held by Neil D. Fleming, Christchurch, New Zealand and Charles C. Bonwell, Green Mountain, Colorado, USA.*

Choose the answer(s) which best explain(s) your preference(s) and circle the letter(s) next to it. Leave blank any question which does not apply, but try to answer at least 10 questions.

1. You are about to give directions to a person who is standing with you. She is staying in a hotel in town and wants to visit your house later. She has a rental car. I would:
 - a. draw a map on paper
 - b. tell her the directions
 - c. write down the directions (without a map)
 - d. collect her from the hotel in my car

2. You are not sure whether a word should be spelled 'dependent' or 'dependant'. I would:
 - a. look it up in the dictionary.
 - b. see the word in my mind and choose by the way it looks
 - c. sound it out in my mind.
 - d. write both versions down on paper and choose one.

3. You have just received a copy of your itinerary for a world trip. This is of interest to a friend. I would:
 - a. phone her immediately and tell her about it.
 - b. send her a copy of the printed itinerary.
 - c. show her on a map of the world.
 - d. share what I plan to do at each place I visit.

4. You are going to cook something as a special treat for your family. I would:
 - a. cook something familiar without the need for instructions.
 - b. thumb through the cookbook looking for ideas from the pictures.
 - c. refer to a specific cookbook where there is a good recipe.

5. A group of tourists has been assigned to you to find out about wildlife reserves or parks. I would:
 - a. drive them to a wildlife reserve or park.
 - b. show them slides and photographs
 - c. give them pamphlets or a book on wildlife reserves or parks.
 - d. give them a talk on wildlife reserves or parks.

6. You are about to purchase a new stereo. Other than price, what would most influence your decision?
 - a. the salesperson telling you what you want to know.
 - b. reading the details about it.
 - c. playing with the controls and listening to it.
 - d. it looks really smart and fashionable

Appendix 4(a): General VARK questionnaire used on all adult stakeholders interviewed in the Speyside community (continued).

7. Recall a time in your life when you learned how to do something like playing a new board game. Try to avoid choosing a very physical skill, e.g. riding a bike. I learnt best by:

- a. visual clues -- pictures, diagrams, charts
- b. written instructions.
- c. listening to somebody explaining it.
- d. doing it or trying it.

8. You have an eye problem. I would prefer the doctor to:

- a. tell me what is wrong.
- b. show me a diagram of what is wrong.
- c. use a model to show me what is wrong.

9. You are about to learn to use a new program on a computer. I would:

- a. sit down at the keyboard and begin to experiment with the program's features.
- b. read the manual which comes with the program.
- c. telephone a friend and ask questions about it.

10. You are staying in a hotel and have a rental car. You would like to visit friends whose address/location you do not know. I would like them to:

- a. draw me a map on paper.
- b. tell me the directions.
- c. write down the directions (without a map).
- d. collect me from the hotel in their car.

11. Apart from the price, what would most influence your decision to buy a particular textbook:

- a. I have used a copy before.
- b. a friend talking about it.
- c. quickly reading parts of it.
- d. the way it looks is appealing.

12. A new movie has arrived in town. What would most influence your decision to go (or not go)?

- a. I heard a radio review about it
- b. I read a review about it.
- c. I saw a preview of it.

13. Do you prefer a lecturer or teacher who likes to use:?

- a. a textbook, handouts, readings
- b. flow diagrams, charts, graphs.
- c. field trips, labs, practical sessions.
- d. discussion, guest speakers.

Appendix 4(b): High School VARK questionnaire used on all primary and secondary school students interviewed in the Speyside community. *Copyright for this version (High school) of VARK is held by Debra Jones, Cabrillo College, Aptos, California 95003 (831-479-5071), Charles C. Bonwell and Neil Fleming.*

Choose the answer (s) which best explain(s) your preference and circle the letter next to the answer(s). Leave blank any question that does not apply, but try to answer at least 10 questions.

1. When you have a few minutes with nothing better to do would you be more likely to:
 - a. stare into space or doodle.
 - b. talk to yourself or to others.
 - c. pick something up to read.
 - d. do something practical, like fix something or straighten up your room.

2. You are not sure whether a word should be spelled 'dependent' or 'dependant'. Do you?:
 - a. look it up in the dictionary.
 - b. see the word in your mind and choose by the way it looks
 - c. sound it out in your mind.
 - d. write both versions down on paper and choose one.

3. You want to plan a surprise party for your best friend's birthday. Do you?:
 - a. talk about it on the phone with your other friends.
 - b. make lists of what to do and what to buy.
 - c. picture the party activities in your mind.
 - d. invite friends and let it develop.

4. You are going to make or build something special for your family. Do you?:
 - a. make something without the need for instructions.
 - b. thumb through some books and magazines looking for ideas.
 - c. refer to a specific handbook where there are good instructions.
 - d. talk it over with some friends

5. You are really pleased with your acceptance for a summer program. This is also of interest to two friends. Do you?:
 - a. take them to see the program in action.
 - b. show them the brochure and information you've found about it
 - c. start practising the activities you'll be doing in the program.
 - d. describe to your friends the activities you'll be doing each day of the program.

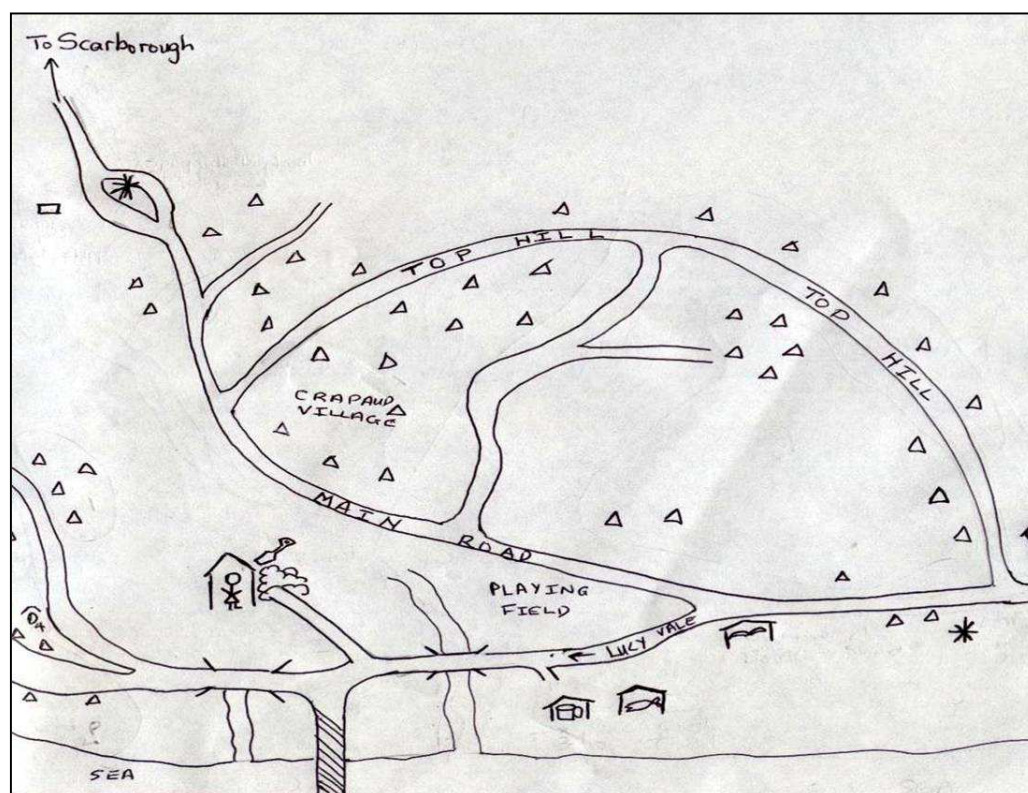
6. You are about to buy a new CD player. Other than price, what would most influence your decision?
 - a. the salesperson telling you about it.
 - b. reading the details about it.
 - c. playing with the controls and listening to it.
 - d. it looks really nice and it is something you could picture in your room.

Appendix 4(b): High School VARK questionnaire used on all primary and secondary school students interviewed in the Speyside community (continued).

7. Recall a time in your life when you learned how to play a new board game or computer game. How did you learn best? By:
- watching others do it first
 - reading instructions.
 - listening to somebody explaining it.
 - doing it or trying it for yourself.
8. After reading a play you need to do a project on it for your English class. Would you prefer to:?
- read a speech from the play in front of the class.
 - draw a poster showing something that happened in the play.
 - act out a scene from the play.
 - write your own review on the play
9. You are about to try to hook up your parent's new computer. Would you first:?
- unpack the box and start trying to put the pieces together.
 - read the manual that comes with the computer.
 - telephone a friend and ask questions about it.
 - look at the pictures in the manual and on the box
10. You need to give directions to two friends to go to a house nearby. Do you:
- draw a map on a piece of paper.
 - tell them the directions.
 - write down the directions on a piece of paper.
 - walk them over there yourself.
11. You have a problem with your knee and it hurts when you play your favourite sport. Would you prefer that the doctor:
- describe to you what is wrong.
 - give you an article or brochure that explains the common problems with knees.
 - show you a diagram of what is wrong.
 - demonstrate with a model what is wrong.
12. A new movie has arrived in town. What would most influence your decision to go (or not go)?
- you hear friends talking about it
 - you read what others say about it in a magazine.
 - you see a preview of it.
 - it is similar to others you have liked.
13. Do you prefer a teacher who likes to use:?
- a textbook and handouts.
 - diagrams, charts, pictures and slides.
 - field trips, labs and hands-on sessions.
 - Class discussions and guest speakers.

Appendix 5 (a): Sketch Map of Speyside Showing the Sample Route.

Note: Map is not drawn to scale and the number of houses may not be accurately depicted.



KEY

	- Works building	* Lookout	
	- Internet Cafe		Craft Shop
	- Community Centre		House
	- Kindergarten		- School under Construction (R)
	- Health Centre		- Diveshop
	- Restaurant		- Jetty
	- Reef Tour Operator		- Beach Facility & Bar
	- Hotel		- Fish Facilities
	- Water Wheel		- Tourism Booth
			- School (1°)

FIG 22: Sketch map of route (Lucy Vale, Main Road, Top Hill and Crapaud Village) assignment for data collection in Speyside

Appendix 5 (b): Sketch Map of Speyside Showing the Sample Route.

Note: Map is not drawn to scale and the number of houses may not be accurately depicted.

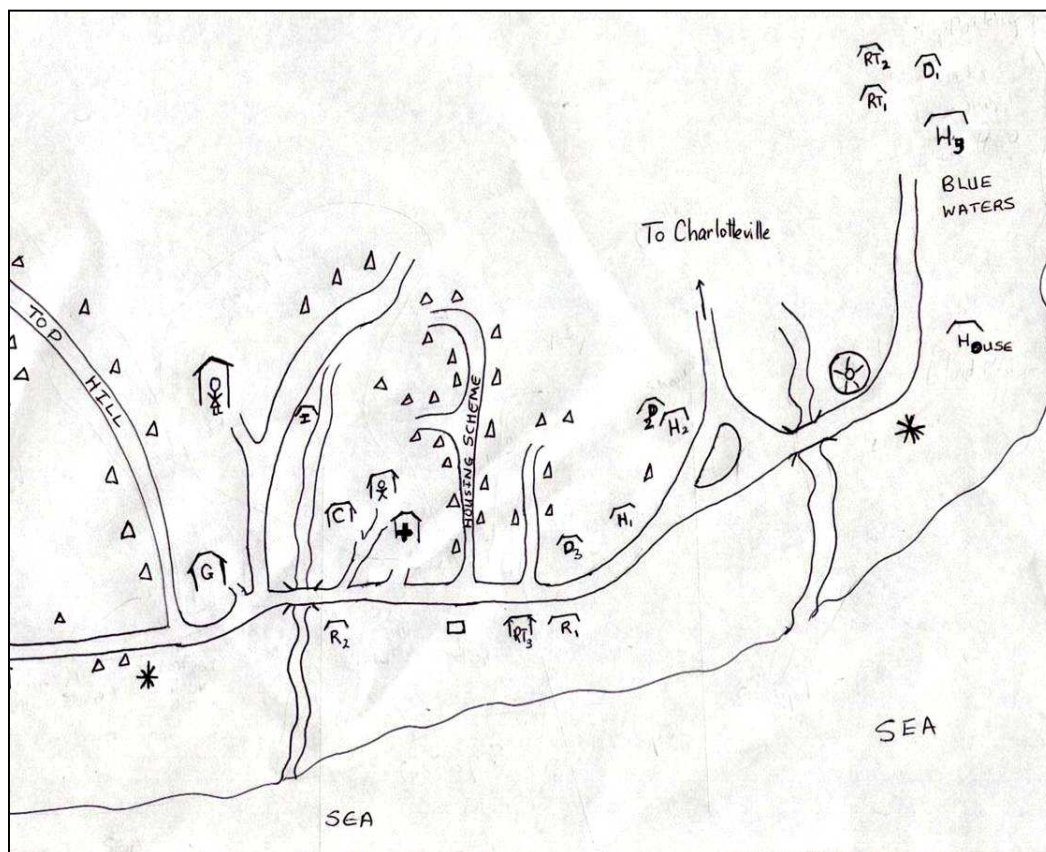


FIG 23: Sketch map of route (Top Hill, Housing Scheme and Blue Waters) assignment for data collection in Speyside

Appendix 6: Sample of Interview Conducted with the Speyside Village Council.

Village Council Meeting- conducted on Thursday 15th July, 2004 at the Speyside Community Centre. Members present: Farley Augustine- Vice President, Anthony Cordner-Treasurer, Jephthah Davis- Secretary, Rupert Mc Kenna- member, Edgar Frank-member, Mischelle Trotman- Welfare Officer, Elma Lashley Trotman-member, Farley Augustine Jr.-member, Philomen Spencer Gray-member.

Interview

1. Do you have information on the number of persons in Speyside and the various ages, residency time and occupations?

The council is unaware of previous studies in this area and if the studies were done the village council does not have access to this information.

2. What is the highest level of education attained by persons in the community?

Most people in the village have primary school level of education, few with secondary

3. What % of the population is literate (can read and write)?

Literacy is a problem. About 2 years ago there was a literacy class for adults, proposed for the Speyside community and only 1 person was willing to participate. The person in charge was still willing to run the programme once more people are interested. Reason for lack of participation could have been embarrassment. If any programme has to be done, it should be done through the village council as the Village Council is the government of the village. Problem extends into secondary school age as even children can't read. This may be because in Speyside there is no proper TV, radio reception and no newspapers. The lack of papers is because there is no agent in the village. There was an agent but management was a problem.

4. Are there any developments planned for Speyside?

Marine Park development. Last heard on it was that it was in the hands of the THA. Most people in the village lacked sufficient information and information was never given on it afterwards so people were sceptical. A private investor

wants to do a 10yr plan to put up a supermarket, villas, and pipelines. This was proposed about 1 yr ago.

5. What community groups are there?

Mother Union, a group from the Anglican church; Fundamentals Cultural group, a music group run by Mr. Anthony Cordner; political party group; all fours group; youth group; village council. The Fundamentals is the only group registered with THA and affiliated with the Village Council so they are the only group with access to financial assistance. The membership of the Fundamentals is mainly from outside of Speyside with about 19 members. It was around for almost 26 years. Mr. Cordner is a qualified music teacher who offered lessons freely but most persons were not interested. Most groups do not communicate with the Village Council. Most groups in the village don't last long. There is a PTA with the primary school but they only meet when "something happens". The pre-school has regular PTA meetings. Politics play a very strong role in Speyside.

6. What is the reason for the number of community groups?

Mainly the attitude of the members prevents the groups from going forward. Mr. Cordner thinks that most members of the Fundamentals don't stay because of his "dictatorship" approach where "he is strict, serious and will tell you like it is". This was supported by the other members present who were members of the group. All other members present except Mr. Cordner stated that they did not support a dictatorship attitude.

7. Do you think that the community in Speyside needs a marine environmental education programme? Why?

Yes it would be a good idea. Several problems exist in Speyside. Drains are a problem; garbage disposal is a problem as the Charlottesville current carries out garbage and the Speyside current brings in garbage so not all waste is from Speyside.

8. Was the community involved in any environmental educational workshops? What?

None

9. Why do you think there are no marine environmental education/ awareness/ training programmes in Speyside?

The community has a “don’t care” attitude; they tend to destroy what we have. Some people would like it but there is a mentality also that when you reach a certain age you stop learning.

10. Do you think the community would be willing to participate in a marine environmental education programme?

Some would be willing to participate, but the only way there will be a good turn out is if there are things to eat or if there is money to give away. There is a lot of talent in Speyside but the people don’t tap into it and do not make the best use of their talents. There is also the mentality that nothing good can come out of Speyside, but this is not true as Speyside has produced lawyers, doctors and other successful people. There is also a problem within the community where some people are unwilling to share information with other villagers. Problems exist with people having selfish motives and selfish gains.

11. What do you think are some of the important topics that should be addressed in a marine environmental education programme? Give reasons

- Solid waste disposal with practices like separating waste, recycling and reusing waste. This is a major problem and there are bad attitudes and practices where people dump waste into drains. People need to learn how to appreciate the environment. People need to realize that burning their garbage affects the ozone, the air quality in the area.
- Replanting trees on the sea front is a major issue. The sea front in Lucy Vale used to have a lot of sea grape trees, but with development in the area and to get easy access to beach, the trees were removed.
- Lack of proper parental guidance is a problem. Home environment affects youths because if parents lead by example, youths tend to follow so education should not only be focusing on the youths but also on adults. Need to instil discipline; let teachers set the example; have rules which must be followed regardless of what others do; have more courses to

address these problems before environmental education can be addressed. Indiscipline can be related to problems with the environment, such as dumping waste into drains. Literacy has to be addressed as most people will not ask for help. All this needs to be addressed before an education programme can be successful.

12. What facilities and resources do you think are required in Speyside in order to establish a marine environmental education programme?

Need more people coming in to give lectures, people with proper training. Need to give support to persons who may not have “book smarts”, give everyone a chance. You need resources, time, and energy and begin with the council. Technology is needed to bring the experience and knowledge to teachers, participants such as the projector. Need the committed few to make a difference. The playground was converted to what it is today by 10 men even though the rest of the community was against it. Older heads should be involved to guide the youths but this does not always happen. Trust is a problem. Need a special class for Marine Biology; teaching students to SCUBA dive. Generally there is a need to have residents of the windward side of the island trained (technical skills) to operate the decompression chamber located in Roxborough. Tourism knowledge is not being handed down to the community. Tour guides are foreigners. Tour guide classes were held in area, but mainly persons with connections to Forestry, were involved. It did not benefit all members of the community. Speyside was not even aware of it.

13. What are some teaching methods that you think may be best for the Speyside area? Give reasons

Best method to use is physical activities, not books. Literacy is a problem, books and reading may not be the best approach. Reading newspapers should be made a mandatory part of an education programme. The majority of participants may be youths who may not want to listen so you need to find a way to get them to stop and listen. Music has a great influence over the youths in the village, so put the education into song. Music seems to be doing something that the community, homes and schools are not doing. Change the style of teaching from mainly

classroom to incorporate more techniques. Have discussions where everyone has a chance to present their views, opinions and listen to each other.

14. How do you feel about the new secondary school?

Generally thought that the school was good, but it was a problem to some people. Some people had the mentality that they don't want their children going to that school as the ones in town are better than those in the country area. Mr. Augustine who worked in the school stated that the school is well equipped with the best. Stated that the location of the school makes it easier for teaching marine education as the beach is next to it and there are qualified dive shops in the area. The school is uplifting to the village, beneficial to the whole windward district. It was said to be a school for slow learners, said that there is going to be a special class for Marine education- biology.

15. Is there any historical information available on Speyside?

The area was a slave centre with approximately 232 slaves, with only 2 survivors. The rest died from scurvy, water borne diseases. One estate was called Trois Rivere and it was located where the present secondary school was built. The second estate was Speyside Estate. It was said that it is good to pass on the history to children in the area, it can also promote tourism. It would be a good idea to have a museum in Speyside with artefacts. It was noted that all the documents and history of Tobago (Speyside) was found in Trinidad and in the library in Scarborough, which is not very organized at this time. Speyside has one of the best dive sites in the Caribbean and the community now has the responsibility to be educated for the sake of the next generation.

16. What about the cultural component of the Speyside?

Heritage Festival has become too commercialized and the villagers don't get back what is put out. Every year it is the same programme. They should get back something from the festival to be able to preserve the history, the culture. It is the belief that the heritage of Speyside and Tobago should be promoted all year round, not only for Heritage Festival. It should be something to bring communities together. It has lost the essence of the village. There is a need to tap into the knowledge possessed by the elders in the village.

- Speyside takes part in Fisherman's Fete from 1st Sunday in June, organized by the Anglican Youth Group.
- Speyside Harvest is normally held on the last Sunday of July.
- The Fundamentals took part in the Heritage Festival twice (2003, 2002)

17. List influential members who may be willing to help or promote an education programme

- Mr. Newton George
- Mr. Dan Juma- Issac Augustine
- Rupert McKenna- was a scuba diver who helped make videos for documentaries on reefs in Speyside (Tobago). He also has access to books on the reef and is willing to share.
- Mr. Joseph Murphy
- Mr. Eric Davis
- Mr. Farley Augustine Sr.- prefers background work
- Malissa Davis- youths with good attitudes
- Farley Augustine Jr.

18. How does the Village Council communicate with the rest of the village?

Notice board, radio, word of mouth, flyers can be distributed in the mail.

Appendix 7: DirecTV Satellite Dish in Speyside Indicating the Poor Local TV Reception in the Area.

DirecTV
Satellite Dish



Fig. 24 DirecTV satellite dish commonly noted on houses in Speyside.

Appendix 8: Pictures taken in Speyside showing one of the fishing methods.



Fig 25: Pirogues used for fishing and diving at Speyside.

Appendix 9: Pictures taken in Speyside Highlighting Coastal Development and Possible Sand Mining Activities.

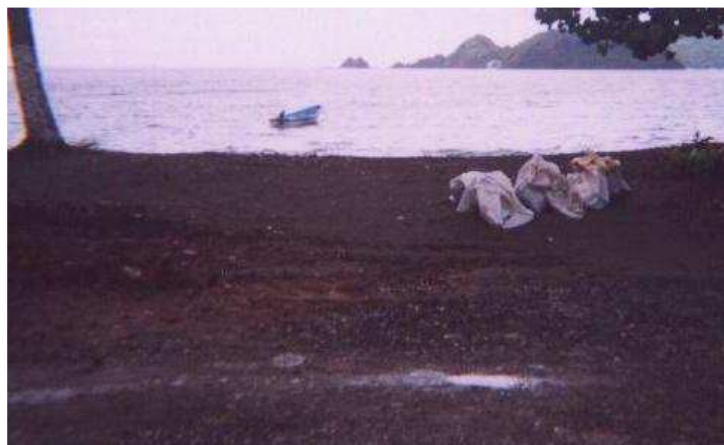


Fig 26: Bags of sand pointed out by villagers as possible sand mining activities.



Fig 27: Construction material in piles next to a drain leading to the sea.